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FEATURES

Shared Responsibility 1

Air Carrier Internal Evaluation Programs 4

Flight Amid Vertical Terrain, Part 2 7

Gray Matters 13

Women's History Month Profile 16

Osborn's Last Flight 20

Keeping the Fun in Sun 'n Fun 21

DEPARTMENTS

Medical Stuff: Alcohol and Flying 18

FlightFORUM 25
Instrument CORNER 25

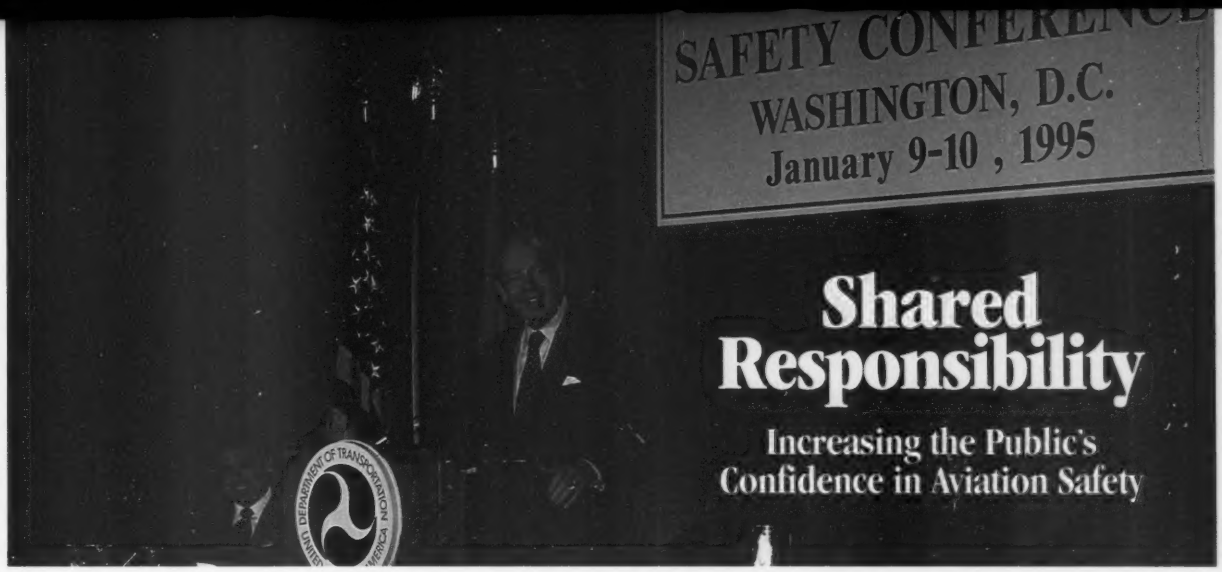
AvNEWS/BRIEFS 27

Test Your Piloting IQ ..... *Inside Back Cover*

On the Cover:
Photo courtesy of Commander Aircraft

Osborn—the passing of an aviation legend. See page 20.

On the Back Cover:
It's that time of year again.Sun 'n Fun. See page 21.



Shared Responsibility

Increasing the Public's Confidence in Aviation Safety

by Phyllis Anne Duncan

Until July 2, 1994, passengers aboard U.S. airlines had traveled for 831 days—more than two and a quarter years—without a single fatality. Independence Day weekend saw a crash in Charlotte, NC, and the second half of 1994 would bring six more fatal accidents. The year would end with a total of 264 air carrier fatalities—the second lowest total in history, but coming after such a long accident-free period, the public reeled. For the first time in many years, air travel over the holidays was down. No matter that the most often-used alternative to air travel—highway travel—is 30 times more dangerous, people cancelled their plane reservations and took to their cars. It was a crisis of confidence in the world's safest air transportation system.

On December 14, 1994, in response to this perception, Secretary of Transportation Federico Peña unveiled a three-part initiative to examine and enhance aviation safety standards. One aspect of the initiative would be *special safety audits* of all operators in 1995, over and above the 400,000 safety inspections FAA normally conducts annually; another is the current *effort to improve commuter safety standards*. The third aspect was *a safety conference* involving the aviation industry in unprecedented numbers.

Peña invited airline executives, safety chiefs, pilots, manufacturers, and FAA principal operations and maintenance inspectors and managers. The sole theme of the conference, Peña stated would be for everyone involved to ask themselves, "What can we be doing to enhance aviation safety?"

In the general and trade media it was called the "Safety Summit" or aviation's first "town meeting," but to its organizers, it was simply the "Aviation Safety Conference." And it was conceived, planned, and executed in amazingly record time for a public conference of its size.

Conference Opening Day

Over 1,100 "aviation safety experts"—as Secretary Peña called the attendees—met in Washington DC on January 9 and 10. Secretary Peña opened the conference with a review of 1994 in aviation that included a personal reference to his faith in the U.S. airspace system: "I've flown over 300 flights in commercial aircraft the last two years, along with a half billion other passengers who have flown a half a trillion miles, and I have confidently entrusted my life and my family's lives to the safest system in the world."

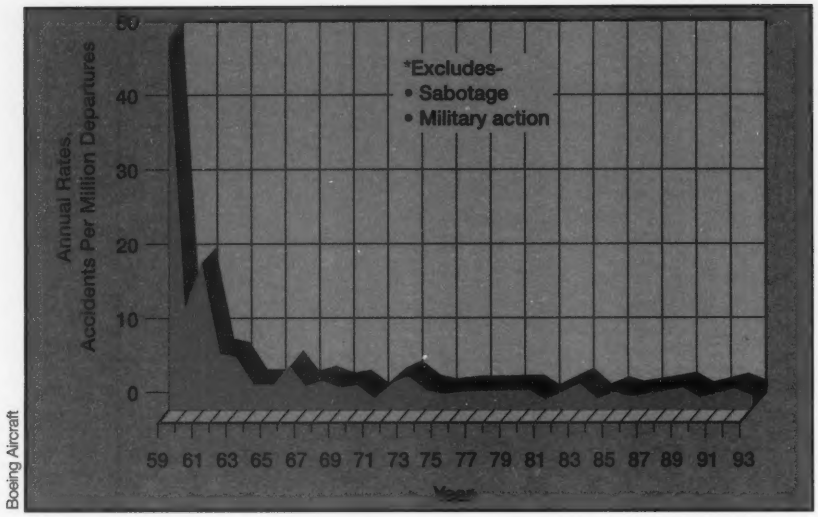
In spite of this safety record, Peña said that the public expects us to do better and that "even though we went 831 days without a fatality—one billion passengers carried safely—" the public expects aviation to do something about the 264 people "who did not make it home" in 1994. "The public and the rest of us expect nothing less than zero accidents," Peña said.

The Secretary iterated that the purpose of the conference "is to show the public that safety responsibility is a shared one with industry." Peña repeatedly emphasized FAA/industry partnership—efforts already under way and expansion into new areas. The Secretary stated that the results of a safety conference without industry participation would have no credibility with the industry or the public.

Peña emphasized that the emphasis on partnership would not mean that the FAA "will not hesitate to use its full, legal authority to deal with non-compliance when necessary."

FAA Administrator David R. Hinson echoed the Secretary's statements and added that the attendees were "here to exchange ideas on the science of aviation safety. We must elevate the intellectual ability associated with flying to its highest level, and we must consider zero accidents as an achievable goal. We must dispense with the attitude that there will always be accidents."

As an example, Hinson displayed a hull-loss chart (Figure 1) which depicted that currently "the industry has an almost zero defects" rate. Over the past 15 years, accidents have been so rare that the system is virtually 100% risk free. Yet, because of this, expectations are so high that one accident distorts the public's view of aviation."



Boeing Aircraft

Figure 1. Hull losses

1994 was the second lowest year in terms of accidents and fatalities, and most accidents and all the fatalities occurred in the last six months of the year. 1994 also saw the lowest number of commuter accidents and the lowest fatalities, making it "the safest year in commuter history." Hinson then gave a brief history of accident rates over the last 30 years in aviation and the government/industry response to them.

History of Safety Initiatives

Accidents soared in the 1960's when the jet age was coming out of its infancy, and investigations indicated the need for changes in pilot training, testing, and certification. The FAA and industry also focused more attention on crashworthiness and evacuation techniques, and the FAA began the introduction of ATC automation and positive control. As a consequence of these actions, aviation began its long and continued decline in accidents and fatalities. Mid-air collisions, for example, have been nearly eliminated as a result of actions taken in the 1960's.

Administrator Hinson continued, "The mid-1970's saw the advent of ground proximity warning systems on all major carriers . . . . Controlled Flight Into Terrain—or CFIT—once the dominant safety concern in this country and still the leading cause of accidents worldwide—now rarely, if ever, happens on major U.S. carriers."

The 1980's brought "more compelling issues and some of the most technically complex solutions"—TCAS, windshear detection, detecting corrosion and fatigue on airframes, counter terrorism programs, to mention a few.

The 1990's, Hinson said, "are certain to prove just as challenging. Over the decades, the government and the industry have pooled information and technology to meet each of these new challenges. And through our collective efforts, we have achieved a safety record that has constantly and steadily improved."

Although offering high praise for the efforts of the past three decades, Hinson warned, "It is apparent to me that the science and knowledge we have used to achieve the existing high levels of flight safety we enjoy today *will not*—I repeat—*will not* let us migrate to an environment of zero accidents."

Moving to the next level of safety, Hinson states, will require both technology and application of "all appropriate sciences."

Hinson cited a Boeing study that indicates a sobering future—given the forecast growth in air travel and given a safety level the same as the past five years, by 2013, there could be an accident worldwide about every eight days.

Hinson quickly added that an accident frequency "of this magnitude is not acceptable. We know we cannot allow this to happen."

The challenge, he said, is quite clear—government and industry must work together again and continuously to find ways to assure that such a staggering possibility will not happen.

Hinson concluded by reminding the attendees that the eyes of the aviation community and the public would be on everyone to see "what we do here."

That first morning session, moderated by FAA Director of Flight Standards Thomas Accardi, also featured talks and inspiration from Deputy FAA Administrator Linda Hall Daschle, NTSB Chairman James E. Hall, FAA Associate Administrator for Regulation and Certification Anthony Broderick, and Ranking Member of the House Aviation Subcommittee, Rep. James L. Oberstar (D-MN).

Associate Administrator Broderick laid the industry's portion of shared safety responsibility at the door of the Chief Executive Officer, a notion reiterated by Rep. Oberstar. Broderick said, "We expect the CEO to know with certainty that his or her company is in full compliance with applicable safety regulations." Voluntary self-disclosure programs, outlined in FAA Advisory Circular 120–59, is "one way of accomplishing this job." Broderick went on to describe the all-operator safety audit, one of the Secretary's three-part initiative.

Operator Internal Safety Audits

FAA aviation safety inspectors assigned to air carriers received guidance regarding the audit program and directions on meeting with the senior operational managers to discuss audit plans and outcomes. Each carrier will conduct an evaluation of the effectiveness of its own internal safety programs. The FAA will return to review the internal audit program conducted by the carrier.

Broderick promised that carriers that have noteworthy programs that have resulted in the best possible safety record will receive "good press" in the public arena. Broderick hoped that this would serve as an incentive for others to devel-

op effective internal audit programs. (See the article on page 4 on air carrier internal evaluations and safety audits.)

Broderick also described the FAA Team Inspections that would be conducted throughout calendar year 1995. The results of this series of inspections will be available to the public in early 1996.

On to Business . . .

Nine hundred fifty of the 1,100 attendees divided into six workshops on topics pertinent to present and future aviation safety. The attendees' particular areas of expertise were considered when assigning them to workshops on Crew Training, ATC and Weather Issues, Safety Data Collection and Use, Applications of Emerging Technologies, Aircraft Maintenance Procedures and Inspections, and Development of Flight Operating Procedures. After a long afternoon of brainstorming, each workshop presented its results and recommendations during a report-out session the morning of January 10.

Workshop #1—Crew Training

Chaired by Ted Mallory of the Air Transport Association, the Crew Training Workshop's goal was "To enable rapid adoption of modern training methods and technologies." The objectives for the workshop were to examine the Joint Government/Industry Task Force findings and make recommendations regarding their adoption; examine the Advanced Qualification Program (AQP) application process and make recommendations which will result in a more efficient and effective process; and examine how emerging technologies are applied to improve training and make recommendations to improve these processes.

The 204 participants in this workshop identified 131 issues and focused its efforts on four key ones: AQP, the Joint/Industry Task Force Recommendations, Training Issues (135 to 121), and New Technologies.

Workshop #2—ATC and Weather

The 48 participants in this workshop were chaired by Jack Ryan of the Air Transport Association. The workshop's goal was to identify goals and strategies to ensure that air traffic control and weather information systems and procedures are cooperatively aligned to ensure increased safety as well as increased efficiency and effectiveness in flight operations. The participants were to develop recommendations to reduce opportunities for error in pilot/controller communications, develop recommendations to prevent runway incursions, and identify needs for the weather products used in both flight planning and operations.

Workshop #3—Safety Data Collection and Use

Chaired by John O'Brien of the Airline Pilots Association, this workshop's goal was to identify needed changes which will ensure all aviation safety data are available for immediate use in accident prevention. The 150 participants were tasked to identify cooperative government/industry measure to provide more effective use of safety data, develop recommendations to implement the Flight Operations Quality Assurance program, develop recommendations to improve the accessibility of safety data bases, and identify expanded applications of the Aviation Safety Reporting System (ASRS).

Workshop #4—New Technologies

Chaired by Bill Cotton of Air Transport Association (ATA), the 140 participants of the New Technologies workshop had the goal of identifying applications and implementation strategies for emerging technologies. The workshop had to identify safety enhancements which emerging technologies can fulfill, determine the resources needed on the part of government and industry to implement the emerging technologies, and establish a timetable for applying the emerging technologies.

Workshop #5—Aircraft Maintenance Procedures and Inspection

Larry Brett, also of ATA, chaired the Aircraft Maintenance Procedures and Inspection workshop, whose goal was to identify more effective procedures and processes that can be implemented to eliminate maintenance related discrepancies. The 220 workshop participants' objectives were to define recommended actions to minimize open discrepancies on aircraft before dispatch, to specify what methods and technologies can be implemented to reduce recurring discrepancies, and to list actions that industry and government should undertake to encourage these steps and develop other recommendations to foster interaction in this area.

Workshop #6—Development of Flight Operating Procedures

Chaired by Jeff Ariens of ATA, the 98 members of this workshop operated under the goal, "to identify strategies to direct the systematic development of safe and efficient flight operational procedures that will not only recognize limitations of present support systems but also define requirements for future support system improvements." The objectives were to identify means to accelerate development of new criteria, procedures, and policies to enhance safety through the application of existing and emerging technologies and to identify measure to encourage the use of flight management systems and other area navigation systems for approach and departure guidance.

Conclusion

Before the workshops began, FAA Associate Administrator Broderick had asked that the participants reflect on some questions as they deliberated their recommendations. The questions were directed at industry's share of the responsibility for aviation safety:

1. *What have you, as a senior executive in your company, done to organize your operation so that you get immediate, unfettered feedback on safety problems?*
2. *When a line employee has a safety concern, is the reporting of that concern easy, and does that employee feel that it is welcomed, or is it a career threatening experience?*
3. *Do you publicize and reward discovery and reporting of safety concerns as a means of encouraging others to do so?*

Continued on page 6

United Airlines

Air Carrier Internal Evaluation Programs

by Phyllis Anne Duncan

As part of Secretary of Transportation Federico Peña's three-part initiative to enhance aviation safety standards (see p. 1), DOT and FAA have called on all certificated air carriers to conduct internal audits and disclose not only the issues they uncover but their corrective actions.

Tell the FAA that we messed up, possibly resulting in non-compliance? Right, and I have a Wall in Berlin to sell you . . .

For nearly three years, FAA has had in place voluntary disclosure procedures whereby carriers can report to the FAA any problems they've discovered through an internal audit and demonstrate the steps taken to correct the problems and assure they don't happen again. Carriers can do this without fear of legal enforcement action—if the audit has been done properly, the carrier reports to the FAA promptly, and the corrective action is conducted promptly as well.

FAA's enforcement procedures have always been a means of achieving compliance and not a punitive end. Civil penalties have not always resulted in deterrence, whereas incentives to certificate holders to identify and correct their own instances of noncompliance enhances safety and serves the public interest. The voluntary disclosure program's purpose, then, is to encourage compliance with the FAR, foster safe operating practices, and promote the development of internal evaluation programs.

Internal Evaluation

Anyone who has been a certificated operator or an aviation safety inspector is familiar with the old scenario. The FAA comes for a scheduled or spot inspection, finds something wrong, and begins enforcement action. A great deal of time is involved for investigation, paperwork, and meetings. More often than not, an operator goes away with a bad feeling, having lost revenue and possibly being fined for something gone awry that no one in the company noticed. That placed barriers in the way of communication of safety information—why talk to the FAA; they only find things wrong?

Believe me, operators were not the only ones unhappy with this way of doing business; FAA's safety professionals—the inspectors—felt that there must be a better way. Why couldn't operators receive additional guidance on how to inspect themselves, find problems, correct them, then tell the FAA for a pat on the back instead of a violation? Working with operators, Flight Standards designed the *Air Carrier Internal Evaluation Program* and put it in place in 1990.

The Internal Evaluation Program is voluntary; that is, participation is left solely to the discretion of each certificate holder. Since FAA encourages—and has always done so—certificate holders to identify, correct, and disclose instances of non-compliance, the development and implementation of an internal evaluation program benefits everyone—FAA, the operator, and the flying public.

Most carriers have safety offices or a designated safety officer, so why the need for an internal "audit?" A fully developed internal evaluation program is a consistent, systematic look at all aspects of a carrier's operations—flight, maintenance, dispatch, etc. Its sole purpose is to find potential safety problems and correct them before the FAA does but more importantly, ***before they cause an accident***.

In his speech before Secretary Peña's Aviation Safety Conference, FAA Associate Administrator for Regulation and Certification Anthony Broderick indicated that carriers who developed internal evaluation programs and lived by them should receive favorable mention of that fact in the general and trade media. Not only that, a new bond of partnership can be formed between the carrier and the FAA, one of mutual trust rather than skepticism.

The internal evaluation program is based on the premise that certificate holders are primarily responsible for continuously monitoring their operations to ensure they are in compliance with the FAR. Internal evaluations revolve around four basic principles:

1. A continual process that incorporates inspections, audits, and evaluation to assess the adequacy of managerial controls for key programs
2. A review that extends beyond regulatory compliance to discover the root causes of deficiencies and identify enhancements that will prevent deficiencies from occurring
3. An ongoing process that identifies deficiencies, develops corrective action plans, and establishes follow-up
4. An independent process that has "straightline" reporting responsibility to top management

An internal evaluation program ***does not*** replace existing regulatory surveillance by FAA. Rather it is a self-audit where all employees from line personnel to top management have a responsibility to develop and adhere to operating practices that assure safety. Because of the nature of an internal evaluation program, then, it must be the operator's responsibility to develop one that fits the specific operator's needs.

Indeed, the inclusive self-audit that the Secretary of Transportation has ordered will involve the FAA only at the beginning and end of the process: FAA inspectors will provide operators guidance on how to design and conduct the evaluation; they will then step back and allow the operators to handle their internal issues, returning only after the process is complete to review and advise on the corrective actions.

Elements of an Internal Evaluation Program

FAR Part 121 and 135 operators who develop internal evaluation programs should include the following essential elements in the program:

- *Independent/defined responsibility*—a specific person who has the authority to perform the evaluation; identify and record findings; initiate, recommend, or provide solutions; verify the implementation of solutions within a specific time; and communicate and coordinate activities with FAA personnel

- *Top management review*—a "top" management official who is involved in the process throughout and verifies that satisfactory corrective action have been taken; that is, a place where "the buck stops"
- *Continual process*—an on-going process, not just an occasional spot check, that determines whether findings are isolated instances or a systemic problem
- *Internal evaluation schedule*—a defined schedule of activities that includes a periodic review but is also dynamic enough to adjust to changing aspects of the operation and includes a follow-up schedule
- *Corrective action plans*—procedures that ensure that responses are developed for the findings and for monitoring that corrective actions are taken
- *Records*—to document the performance and results of the evaluation and serve as the principle form of evidence for the certificate holder to demonstrate that problems have been identified and corrected; accuracy, completeness, and reliability are essential.

More detail on how to establish an internal evaluation program is found in FAA Advisory Circular (AC) 120–59, "Air Carrier Internal Evaluation Programs." This advisory circular is free from U.S. Department of Transportation, General Services Section, M-443.2, Washington, DC 20590. Additional guidance, an *Air Carrier Internal Evaluation—Model Program Guide*, is available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; (703) 487–4600.

Voluntary Disclosure

Conducting a self-audit and taking corrective actions is only part of the process. Voluntary disclosure of the findings and the corrective action is also essential for a number of reasons: FAA must still verify that non-compliance no longer exists, and one carrier's findings and corrective action can be of assistance not only to the FAA on a safety basis but also to other carriers. Safety information is not a corporate secret.

FAA's policy is that open sharing of apparent non-compliance, along with a cooperative attitude toward solving problems will enhance and promote aviation safety. In place of a civil penalty, certificate holders will receive a letter of correction for instances of non-compliance that are voluntarily disclosed to the FAA in accordance with established procedures.

In evaluating a disclosed instance of non-compliance, FAA will ensure that the following conditions are met:

1. The certificate holder immediately notified the FAA after detecting the apparent non-compliance and before the FAA learned of it
2. The apparent non-compliance must have been inadvertent
3. The apparent non-compliance does not indicate a lack or a reasonable question about basic qualification of the certificate holder

4. The certificate holder must have taken immediate action or begun immediate action upon discovery
5. The certificate holder must develop a comprehensive fix to the FAA's satisfaction

The initial notification of the apparent non-compliance to the operator's principal inspector can be verbal or written, but to satisfy the requirement for immediate notification, the operator may want to call then follow up with written notification. The notification must include a brief description of the apparent non-compliance, verification that no additional non-compliance occurred after the initial one was verified, brief description of the immediate action taken, verification that an evaluation is underway, identification of the person responsible for preparing the fix, and acknowledgment that a detailed written report will be provided to the principal inspector within 10 calendar days. A final, comprehensive written report is also required.

The FAA then works with the certificate holder to assure that the fix is comprehensive and satisfactory, and once the principal inspector determines that the fix is satisfactory, he or she prepares a letter of correction. In the event that the FAA discovers that the fix has not been fully implemented by the time agreed upon, legal enforcement action could ensue.

For more information on voluntary disclosure and a sample format for the written report, see AC 120–56, *Air Carrier Voluntary Disclosure Reporting Procedures*. This AC is also free, from the same DOT address as above.

A Shared Responsibility

Just as everyone at January's Aviation Safety Conference kept repeating, safety is a shared responsibility. Conducting an internal audit and reporting the findings to the FAA not only demonstrates a proactive approach to enhancing safety, it fulfills industry's share of the responsibility.

Take responsibility for your actions—self-audit and disclose. It will help everyone. ■

Shared Responsibility

Continued from page 3

4. *Do you have an anonymous hot line, where employees can get safety issues to top management without reprisal?*
5. *Have you created a climate where people are given a pat on the back for getting the flight off or a cold stare when reporting a last minute mechanical?*
6. *What would the line pilots, the maintenance technicians, engineers, dispatchers, and flight attendants say if I asked them these questions?*
7. *Finally, how do you know what they would say about safety issues? When is the last time you discussed this with them?*

They were thought-provoking questions that obviously the participants kept in mind, as one can see from the 500+ recommendations. FAA Administrator Hinson indicated that the recommendations indicated some priorities: one level of safety and the importance of new technology.

Hinson promised that the FAA would cull the top initiatives from the 540 and develop an action plan within 30 days. But, because safety is a "shared responsibility," Hinson indicated that "there are things that we expect industry to do....We want industry to look at these recommendations and lay out for us their *voluntary actions and a time table*." Hinson and DOT Secretary Peña called for that response also within 30 days, "but if you can take some of these actions tomorrow, I encourage you to do so. Likewise, I can assure you that the FAA will do its part."

He was echoed again by Associate Administrator Broderick. "We are all judged in our safety performance by the record of the group . . . . The lowest common denominator will establish the public's opinion of your safety attitude.

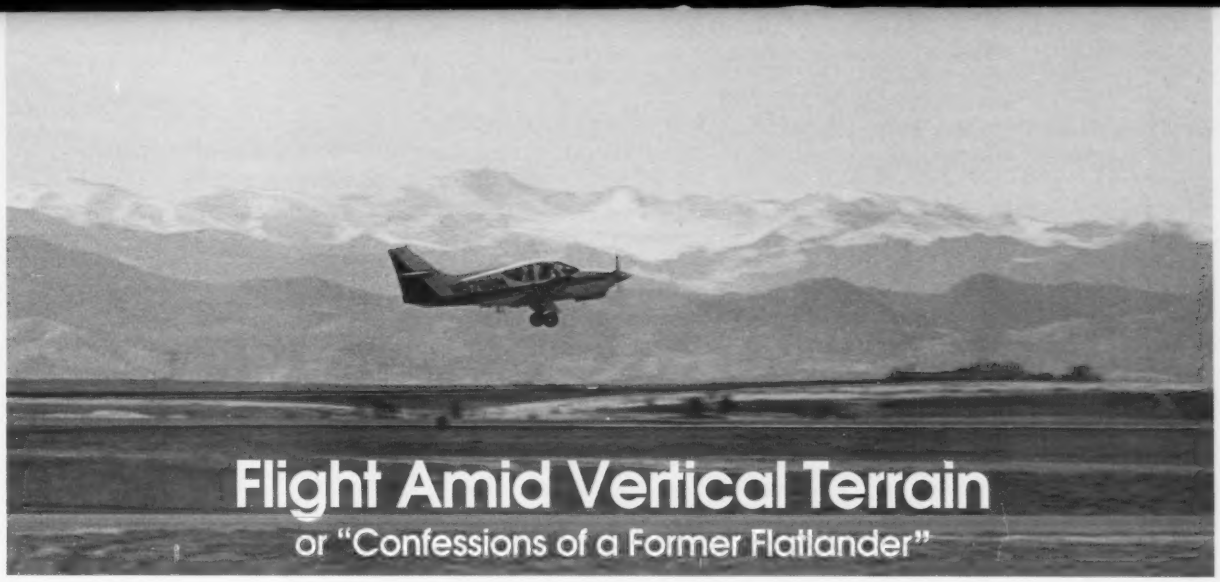
"We in FAA will do all we can. I ask that you not only work with us, but help each other to strive for accident free air transportation."

It cannot be said enough: Safety is a shared responsibility. ■

Because of our advanced press times, when you read this, the 30-day deadline will have passed. We will follow-up on the FAA's action plan in a future issue.—Editor

Answers to the Quiz

1. Over 50% of American adults consume alcohol.
2. Per capita consumption of alcohol in the U.S. is about 25 gallons per year.
3. Alcoholic beverages are marketed in a variety of forms, with wine and beer being the most liked.
4. Blood alcohol levels above 0.08 to 0.10% are considered "under the influence" in most states for motor vehicle operation.
5. Different alcoholic beverages have different concentrations of alcohol; however, their total alcohol content can be the same. For example, a pint of beer contains as much alcohol as a 5-ounce glass of table wine. Therefore, the notion that drinking low-concentration alcoholic beverages is safer than drinking hard liquor is erroneous.
6. The total alcohol content of any alcoholic beverage can be easily calculated using the following formula: "Proof" divided by 2 is equal to percent pure alcohol.



Flight Amid Vertical Terrain

or "Confessions of a Former Flatlander"

by Kevin D. Murphy

Mt. Flying

Part Two

In the first installment, we huffed and puffed at density altitudes of over 13,000 feet and learned why not many light, two-place training airplanes live at mountain airports. The first five Observations of a Former Flatlander (OFF) in this series were offered.

The second of this four-part series explores the different mindset required for safe mountain flight. Among today's topics: some surprising ways to get weather information when there appears to be none, why wind looms large in preflight planning, and how to cope with the frustration of being able to see your destination 70 miles away but having to fly 200 miles to get there.

This series is meant primarily for general aviation pilots flying singles and light twins without turbochargers, although most of the information is valid for nearly any type of aircraft. Most examples are set in the American West because of the higher terrain and more jagged slopes, but the principles apply equally to lower, but mountainous, terrain in the East. One caution: ***Do not, under any circumstances, try flight in high density altitudes or mountainous areas without a thorough checkout from an experienced mountain pilot.***

During the several years I preached aviation safety in the West, we used to joke about building a large net—like a tennis net—from the surface to 18,000 feet, dividing the mountains from the lower eastern flatlands. "Flatlanders"—those pilots who hadn't yet thrilled to touching down when the altimeter still reads 7,000 or 8,000 feet—would be required to stop and demonstrate familiarity with density altitude and mountain flying techniques.

Honestly there were times I wished we could have built that net. It would have made life much easier for hard-working Western search-and-rescue teams.

One basic element of mountain flying not mentioned in Part One of this series is mixture control. Just because the checklist for your non-turbocharged airplane reads, "mixture full rich for takeoff and landing" doesn't make it true in the high country!

As the density altitude climbs, the amount of oxygen getting to your engine decreases, requiring less fuel for smooth engine operation and the best possible power. At high elevation airports, and particularly during the summer when density altitudes soar, takeoff runs can be stretched mightily by an engine choking on too much fuel for the air available.

The same is true on landing. The pilot of a high performance twin was on short final one hot summer day at a high country airport when he suddenly remembered the checklist. "Mixtures full rich for landing," he read, and shoved both red knobs all the way forward.

"It was the funniest thing I'd ever seen," the airport manager told me later. "Both engines just kinda puffed a little black smoke, coughed a few times and quit." The pilot set his twin down safely.

Proper leaning varies with airplane type, but for non-turbocharged, fixed-pitch propeller airplanes the most common procedure is to run the engine up to full power and lean the mixture until maximum RPM is reached, then enrichen slightly. Naturally, check your pilot operating handbook for details for the particular aircraft you are flying.

Leaning for takeoff and landing doesn't apply to turbocharged aircraft, where a high-speed turbine is compressing the thin air so your engine is force-fed sea level (or more) pressure. Turbocharged engines must also be handled much more carefully than normally-aspirated engines to avoid damage from shock cooling or too-lean cruise operation. Should you find a turbocharged aircraft for rent in the high country, be prepared for a long and exceptionally thorough checkout.

OFF #6: A full rich mixture in high density altitudes is more than fuelish; it's dangerous.

Weather, and Where to Get It

Mountains make weather, but the paucity of population in many of those areas makes it tough to get an accurate picture of what you'll really face.

"Cross a ridge and you might go from good VFR to zero zero," say gray-haired mountain pilots. "Weather changes from moment to moment. It's hard to know what you've got until you get there."

Fortunately, there are many days when the sky is clear blue, the winds are calm, and not a cloud or fogbank threatens anywhere. Then there are the other days.

The many small, one or two-person manual Flight Service Stations that used to be scattered around the country are rapidly disappearing. With them go the weather observers who provided weather reports and advice on local conditions.

But in their place are machines that report weather. Unlike human observers, these Automated Weather Observing Systems (AWOS) take an observation once a minute and broadcast it on an aviation radio frequency; most also have a telephone number for an easy check on weather during preflight. AWOS frequencies and telephone numbers are available in the FAA's *Airport/Facility Directory* (AFD) booklet. The newer version of the equipment, called Automated Surface Observing System (ASOS), adds a measurement for precipitation.

Now, if only an AWOS could be installed at every mountain airport and along every ridge line . . . .

What's a pilot to do when the nearest weather report is a hundred or more miles from the destination?

"I just call ol' Joe, the airport manager, and ask him what the sky looks like," declared one mountain pilot. "He might not be certified by the National Weather Service (NWS) but he's lived long enough in that little valley to be able to tell a scattered high cumulus condition from a really low overcast with drizzle."

Many of the smallest airports in the West closest to prime mountain getaways offer no FBO, no fuel, no phone, and no weather observations. No foolin'. The village manager is often the airport manager, and the telephone number is village hall. But even a bored file clerk can look out the window and help you comply with the "all available information" requirements of the FAR for preflight planning.

An airport manager or local pilot oftentimes also can tell you about hazardous conditions never mentioned through official channels. "It's rained buckets the last two weeks, so watch that big dip at the south end of the runway. It's so soft it'll eat your nosewheel alive."

OFF #7: The FAR require a pilot to collect "all available information" during preflight planning. For isolated mountain airports, airport managers or village clerks are worth calling to see if they can help in filling out a preflight weather picture.

Route Selection

Ever since moving back to the East Coast, I've marveled at the difference in the thought processes of pilots planning VFR crosscountry flights.

Here in the busy Boswash (Boston-Washington) corridor, a VFR pilot will often draw course lines based primarily on a desire to stay out of Class B, C, or D airspace. Through long experience, pilots have found that routings planned through these chunks of tightly-controlled airspace all too often result in ATC phrases like, "Aircraft calling, stand by," or "Remain clear of the Class B airspace." For many VFR-only pilots, avoidance of these areas (or perhaps unjustified fear of ATC) is a primary consideration in flight planning.

In the wide open spaces of the West, avoiding ATC is usually one of the last things on a pilot's mind, if only because there isn't much ATC in those wide-open spaces. First priority goes to maximizing survivability.

In other words, careful VFR pilots prefer valleys.

Staying in valleys or over relatively flat terrain keeps a greater percentage of aircraft performance and minimizes the effect of wind hurtling over ridges or mountain tops. Density altitude is always a consideration, and staying a couple thousand feet lower than the peaks adds measurably to performance.

Also, lower terrain is usually much friendlier in the event of an unexpected stop. Ground tends to be more level, trees are fewer, and civilization gathers in valleys, so help is closer.

Kevin D. Murphy

Dulce, NM, is typical of mountain airports where the warning "rapidly rising terrain" can have an intensely personal meaning during the heat of summer. This 4,800-foot strip at an elevation of 6,800 feet can be remarkably short. Straight-out departures are discouraged.

Of course there aren't always nice, wide, green valleys running directly from Point A to Point B. Still, a detour including as much friendly terrain as possible is good practice.

Survival is a related issue. "Assuming you lived through the crash, how would you survive in that desolate wilderness until rescue?" my first instructor asked. Later, he showed me the personal survival gear he always carried. It included a gun for bringing home dinner in the wild, a mirror, matches, and a host of other items. Also on board the airplane was a gallon of water; survival experts say dehydration is one of the most serious threats facing pilots downed in the wilderness.

It's possible to carry the right survival gear, but in the wrong way. One pilot who suffered a sudden stop in the high desert at the southern end of New Mexico and Arizona had been careful to buy two plastic gallon jugs of distilled water. It wasn't until the accident he realized that water in easily-burst containers doesn't help much.

Also high on the list of survival gear is a VFR flight plan, with a detailed routing. My first mountain instructor was heavily involved with the Civil Air Patrol. "Out here," he said, "we tend to either find you fairly quickly, or we don't find you at all." Many mountain pilots like to back up their official VFR flight plans filed with Flight Service with "unofficial" flight plans left with friends or family.

Instrument flying is much less commonly done in mountainous areas by pilots of non-turbocharged singles or light twins, in part because the Minimum Enroute Altitude (MEA) can be uncomfortably close to the airplane's service ceiling. In the summer, the heat pushes density altitudes so high that light airplanes struggle to stay at the MEA; in the winter there's very often ice in the clouds.

Those pilots who do fly IFR often find that the only airway routing takes them over high, rugged terrain that they would most certainly avoid if flying VFR. It's not impossible to fly IFR in light singles or twins in high terrain, but natural caution tends to limit flights more than in lower, flatter terrain.

OFF #8: Flight in valleys minimizes terrain hazards and usually provides a more hospitable environment in the event of a sudden stop. In any event, much Western terrain is very thinly populated; decide on survival gear and learn to use it properly.

Special Use Airspace

The sparsely populated areas of the West are also popular with the military, since low-level training can be done while annoying the fewest people.

Some of those government areas are immense, like the giant White Sands Missile Range restricted area that takes up a large chunk of south-central New Mexico. It's not uncommon to be able to see your destination clearly 60 or 70 miles across that restricted area but have to make a detour of an hour or more to get there.

The West has a disproportionate number of these "Special Use Airspace" areas, including prohibited and restricted areas, military operations areas (MOA), military training routes (MTR) and "controlled firing areas" not shown on aeronautical charts,

As a quick review, the types of special use airspace usually found in the high country are:

Prohibited area: Flight is prohibited, usually for reasons of national security.

Restricted area: Flight is subject to restrictions when the area is in use. Information can be obtained from the "controlling agency" or the nearest FAA Flight Service Station. If you are high enough to contact the FAA Air Route Traffic Control Center for the area, "real-time" use information may be available.

Military Operations Area: There is no restriction to VFR flight, although military operations in the area may be hazardous. A Flight Service Station within 100 miles of the area should have information on the schedule for that area. Many pilots just prefer to avoid any MOA; those who choose to fly through keep their eyes wide open, and getting radar advisories from ATC (if possible) is a big help.

Controlled Firing Area: Many pilots are not aware of these, since they are rarely mentioned in ground school and do not appear on aeronautical charts. These (usually small) areas allow tests of rockets, missiles, or explosives when air traffic allows. A "spotter" is stationed on a high point of ground near the test site to warn testers of the approach of light aircraft.

Special use airspace, especially MOA's, and MTR's take up a much greater chunk of Western real estate than most pilots realize. I once charted the exact dimensions of all the special use airspace in New Mexico and overlaid it on a state aeronautical chart, and most of the state was blocked out. It looked like a labyrinth impossible to navigate.

In truth, different chunks of such airspace have floors and ceilings that allow pilots to navigate over or under or have part-time hours of operation. Many of the chunks are MOA's or MTR's, which do not prohibit civilian flight. Although marked on sectional aeronautical charts with a thin gray line, Military Training Routes (not considered "Special Use Airspace") can be deceiving. The thin gray line only marks the centerline of these routes followed by high-speed military aircraft; the actual width may vary from just a mile or so to several miles on either side of that centerline. It's virtually impossible for a civilian pilot to know the actual width of an MTR. [See the article, "Gray Matters," on page 13 for further information.]

One frequently-traveled route on the high plains of the West is blocked by a large MOA that would require a wide detour. The floor of that MOA is only 500 feet AGL, though, so it's possible take a direct route by staying under the MOA. Do I hear a chorus of protests about minimum safe altitudes?

It is true that FAR require a minimum altitude of 500 feet over "other than congested areas," but there is another part of that rule that says (in effect) that lower altitudes are OK over "sparsely populated areas" as long as you can make a safe landing after engine failure and stay 500 feet away from any person, vessel, vehicle, or structure. In

Kevin D. Murphy

Sunlit areas may have updrafts that offer free power to pilots struggling to maintain altitude. Shadowed areas probably will not. The effects of wind flowing up and down mountainsides will also figure into a pilot's minute-by-minute decisions.

much of the West, calling an area "sparsely populated" would be an overstatement, unless you count groundhogs and wolves.

Other pilots prefer to maintain a higher altitude and take their chances with high-speed military activity in an MOA or just accept long detours. Isn't it wonderful to live in a free country?

In any event, always use current charts so you'll know how to deal with special use airspace. The airspace officer for the White Sands Missile Range told me not long ago that the military usually catches about three pilots a month penetrating his restricted area, in which there is "artillery, aerial gunnery, guided missiles" and other hazards he is reluctant to talk about.

"And almost invariably those pilots are navigating with road maps from the local gas station," he said. As Forrest Gump said in the recent movie of the same name, "Stupid is as stupid does."

OFF #9: Good flight planning, using current charts, and a solid knowledge of special use airspace is just as important in the high country as elsewhere.

Effect of Wind on Takeoff and Landing

When I was learning to fly in the flatlands of the East, my instructors were wary of winds more than 15 or 20 knots. "Too likely to cause an accident," they would say.

In the West, instructors are equally cautious about wind but are often willing to train students, under carefully controlled conditions, in higher winds. "I don't want my student's first experience in higher-than-normal winds to be at some isolated mountain strip when help is hours away," said one CFI,

In some parts of the West, high winds are expected at certain times of the year. It's no wonder that airports in the West usually use chains instead of ropes for tiedowns.

Strong winds are a factor in mountain flying for two reasons. First, strong breezes near the ground can spring up suddenly and provide an instant and unexpected opportunity for use of advanced crosswind landing skills. Second, high winds around mountains can cause extreme turbulence and strong up-and-down drafts and provide more than enough reason to cancel a flight.

Contrary to popular belief, some of the heaviest winds and the strangest wind behavior are found in the high flat plains rather than mountain valleys. One spring afternoon I landed twice, once at Fort Sumner, then at Clovis, New Mexico, just a few miles down the road. In that short distance, a 25 or 30 knot steady wind at Fort Sumner had diminished to virtually nothing at Clovis. That sort of "heavy winds here but calm just down the road" phenomena happens surprisingly often in high country.

Handling a strong wind on takeoff or landing in the high country is no different than at lower elevations, except that groundspeed will be higher in high density altitudes, and all those crosswind techniques your instructor taught you will be useful in the high country, including some that you may have forgotten. Remember how to position ailerons and elevators when taxiing in a strong wind, "climbing into" a wind from the front and "diving away from" a tailwind?

In flat, lower terrain, the amount of wind affects a pilot's "go or no-go" decision mostly in terms of crosswind, possible turbulence aloft, or fuel reserves on crosscountries. In mountainous terrain, effects of wind on an airplane are a much larger factor: Strong winds tend to curl around mountains and produce virtual "sideways tornados" (rotor clouds) and up-and-downdrafts that test the strength of any airplane or pilot.

One of the first pieces of advice you'll hear on your mountain-flying checkout is to always consider the wind before taking off. Wind speeds of 25 or 30 knots on the ground virtually guarantee much higher speeds near mountain and ridge tops, and the resulting turbulence and up-and-down drafts are more than most pilots care to challenge.

Cloud signposts that warn of such conditions include a Foehnwall cloud (also called a "mountain cap" cloud), a rotor cloud, and altocumulus standing lenticular clouds.

OFF #10: When winds howl in the high country, experienced pilots lash their airplanes to the ground with heavy chains. But they also keep proficient in crosswind landings, just in case.

Wind as a Weather Factor

One of the surprises I found when transitioning to mountain flying was that wind in mountainous areas was much more than just a number on a groundspeed readout or an annoyance on takeoff or landing.

In fact, wind in mountainous areas can be just as important as ceiling or visibility when making a go or no-go decision. In addition to the effects of wind you already know as a flatlander, wind in mountainous areas:

1) causes updrafts and downdrafts that can make it impossible for you to hold an altitude;
2) creates severe or extreme turbulence; and
3) may make it impossible for you to get out of a high mountain valley during the summer.

The usual rule of thumb among mountain pilots is to avoid flying if the winds are reported as more than 25 or 30 knots.

In mountainous terrain the winds whistle up and down mountain slopes, creating both turbulence and weather. Just as Mr. Bernoulli predicted, they accelerate as they round the top of mountain ranges, so 25 or 30 knots at the nearest reporting station may be just a hint of velocity at higher elevations.

Visualizing the behavior of wind in mountainous terrain isn't difficult. Imagine wind flowing up one side of a mountain range, zipping over the top and cascading down the lee side. Can you visualize the downdraft you'd be fighting if you paralleled the mountain range on the lee side?

Now consider flying on the windward side of that mountain, where an updraft provides continuous free power. Which would you choose?

Of course, a flight doesn't always enjoy convenient valleys between point A and point B. In fact, sometimes you may have to go eastbound or westbound to get to your destination, flying right over those ridges with the updrafts on one side and the downdrafts on the other.

Approaching a ridge on the updraft side is quite exhilarating, but approaching from the downwind side and getting caught in that downdraft is quite another feeling.

Experienced mountain pilots have a cardinal rule: always stay in a position that allows you to turn away, toward lower terrain. By approaching ridges at a 45 degree angle, rather than head-on, the turn downhill and away from the ridge is much shorter. A sudden downdraft encounter close to a ridge is no time to have to negotiate a 90 degree or greater turn just to aim toward lower terrain.

Kevin D. Murphy

Flying early in the morning or toward evening usually means smoother air. A side benefit is the incredible beauty of Western vistas lit by the low angled sun. This aircraft is doing touch-and-goes at Las Cruces International Airport, NM, not far from the Mexican border.

Upslope winds can also be used effectively to gain altitude after a high density-altitude takeoff from an airport in a valley. Like so much else in mountain flying, reading about the technique isn't the same as actually trying it.

My instructor and I had a nearly full load of passengers in the turbocharged Piper *Saratoga* one warm summer day, ready to depart an idyllic 6,360 foot elevation airport nestled deep in a valley north of the Gila wilderness area, just a few miles from the Arizona border.

We got off in ground effect, but even with turbocharging our rate of climb was slow. "Here, let me show you what I've been talking about," he said, and we headed directly toward the awe-inspiring slope to the northeast of the runway. "Can you visualize the wind pushing up that slope on this side of the valley?"

I nodded, fascinated with how closely we were flying to the side of the slope. "The closer you get, the stronger the effect," he pointed out. By the time our wingtip was just yards from the mountain slope, paralleling it, the updraft was very noticeable. The VSI zoomed upwards, and my instructor was all smiles. "See?" he said. "It works!"

A thorough checkout in mountain flying is not a luxury for flatlanders who would challenge high country. It's a necessity.

OFF #11: Visualizing the wind is the first step toward using it to help offset the ill effects of density altitude. It will also make obvious the need to approach ridges at a 45 degree angle, for a quicker getaway toward lower terrain.

Mountain Wave and Cloud Types

On days with moisture in the atmosphere, it's much easier to spot potentially damaging winds in mountainous areas. Three cloud types—altocumulus standing lenticular, rotor, and Foehn-wall—are signposts pointing to a peculiarly strong phenomena known as the mountain wave.

Mountain wave is caused by strong winds blowing over jagged terrain. Some research has shown mountain waves can be produced by hills as low as 300 feet above terrain, although massive mountain ranges are usually involved in severe wave action. Do not discount the power of mountain

Kevin D. Murphy

The pilot and her passenger are getting a view of historic Shiprock in the Four Corners of Arizona, Colorado, Utah, and New Mexico.

waves: One such wave is strongly suspected in the crash of a 737 near Colorado Springs in March of 1991.

Strong mountain waves exist when there are large differences in pressure in a stable air mass that stretches across mountains. If the mountains weren't there, the flow of air from an area of high pressure to an area of low pressure would be nothing more than a good headwind or tailwind.

But mountains interrupt the smooth flow of air, forcing it to flow up mountainsides (orographic lifting) and holding the air aloft. The naturally stable airmass, of course, wants to return to its original level as soon as possible, and once past the mountain range, the lifted air plummets down the lee side like water over a dam.

In strong systems, the air mass may tumble well below its original level, bounce off the ground and hurtle back skyward in a wave action that extends far beyond the mountain range that created the phenomena. In the Rocky Mountains, satellite pictures have shown mountain waves going as far as 700 miles east of the last mountain range.

With access to recent weather information, pilots can make a good prediction of when a strong mountain wave will occur. Signs to look for include:

- reports of pressure falling rapidly (PRESFR) at stations near the lee sides of mountains;
- temperature changes of 12 degrees Fahrenheit or more across mountains;
- winds blowing more than 30 knots across the range;
- reports of strong surface gusts or blowing dust on the lee side of the mountain range.

The strongest waves occur in January and February, although strong polar outbreaks of air moving south have been known to cause mountain waves as early as September and as late as May.

One of the most common indicators of a strong mountain wave is a lenticular cloud, a lens or almond-shaped cloud that is frequently at the very peak of the wave action. These so-called lenticular clouds sometimes appear in stacks or layers that appear stationary. On aviation weather reports, these altocumulus standing lenticular clouds are coded "ACSL". They are a sure sign that wave action is taking place.

If the lenticular clouds appear smooth, the air is probably moving up and down with fairly smooth undulations. When the mountain waves builds to a crescendo, like beach surf, lenticular clouds will reveal the roughness with frayed or ragged edges. A smooth ride is not likely in this condition!

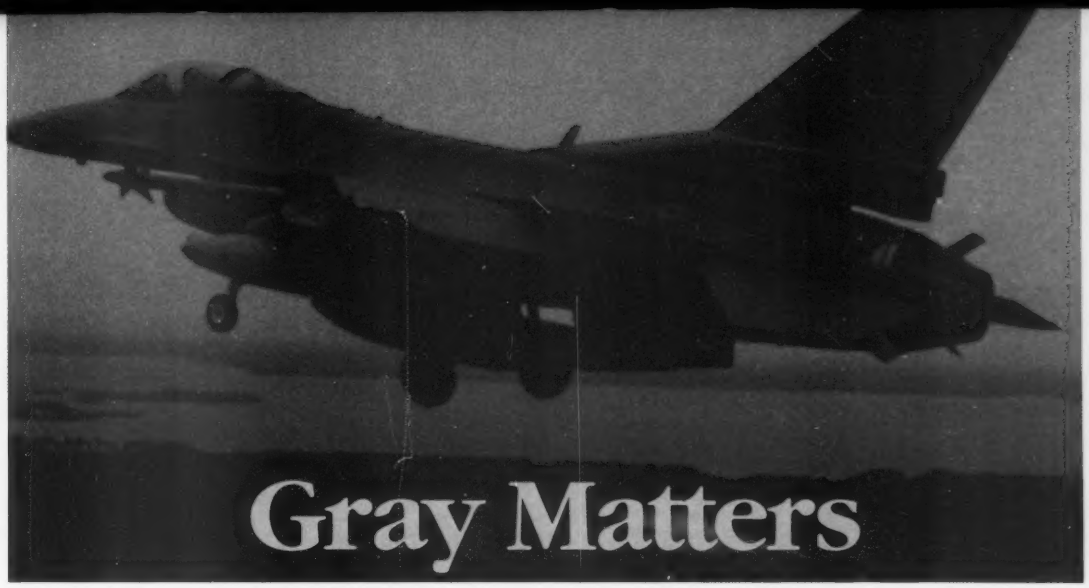
Another cloud sign of mountain wave is a rotor cloud, often seen in strong waves just below the mountain peaks. Seen from the ground or in flight, rotor clouds appear stationary. Don't believe it: time lapse photography reveals that these virtual sideways tornados are continuously forming on the upwind side and dissipating on the downwind side. Updrafts and downdrafts in rotor clouds have been measured at more than 5,000 feet per minute, and experts say that the severity of turbulence in these clouds is exceeded only by a tornado. Speculation is that the 737 crash at Colorado Springs was the result of the airplane being turned upside down by a rotor cloud of a mountain wave.

The third cloud type that can indicate a mountain wave is the "Foehnwall", or "cap" cloud. With enough moisture on the windward side of a mountain peak, a "cap" of stratus clouds will form around the peak and may slide down the lee slope for a considerable distance. As a rough guide, the further down the lee slope of the mountain the cap falls, the stronger the wave.

And keep in mind that mountain waves—like many other mountain flying cautions we've talked about here—are not an everyday occurrence. Flying in mountainous terrain is not more difficult or significantly more dangerous than flying in lower, flatter terrain, it's just different. Proper initial training, a good checkout, experience, and a healthy dose of caution will provide you with many hours of exciting, gratifying mountain flying time.

OFF #12: Lenticular, rotor, and "cap" clouds are signs of mountain wave, a particularly strong manifestation of how mountains make weather. Preflight planning and conservative flying will minimize hazards of this condition. ■

Part Three of this mountain flying series will explain why the West is still a frontier as far as ATC communications at low altitude are concerned, and why creative techniques are sometimes needed to open and close VFR flight plans. This article can only be reprinted with permission of the author.



Gray Matters

by Phyllis Anne Duncan, *Editor*

Nearly three years ago in the summer, a U.S. Air Force F–16 nearly collided with a Maule MX–7–180 at 1,400 feet near Okeechobee, FL. The F–16 executed a 6 "G" pull-up to avoid the collision, and the Maule was caught up in the military jet's wake turbulence and sustained substantial damage. The F–16 continued with its training mission on MTR IR–34, and the Maule managed to land safely at its destination. Probable Cause: Failure of the Maule's PIC to obtain information concerning military training routes along the route of flight.

On a spring day several years ago while operating in VMC, an Air Force A–7E collided with a Rolladen-Schneider LS–4 glider near Warner Springs, CA. The A–7E was attempting a rapid pull-up, and the glider was attempting a nose-down, 30° right turn. Both aircraft landed safely, no one was injured, but both aircraft were substantially damaged. Probable Cause: Improper preflight planning on the part of the glider pilot.

Since 1986 there have been three mid-air collision accidents in or around MTR and 51 known near mid-air collisions. In 45 of the near mid-airs, the military pilots saw the other aircraft and managed to avoid them. There have also been 46 reports to NASA's Aviation Safety Reporting System since 1986 concerning close encounters of the military aircraft kind in MTR.

Things are never completely black or completely white—there are gray areas where we may have to compromise or dissemble. Ideally, we seek the gray areas to keep from becoming ideologues. There are, however, gray areas that we in civilian aircraft need to avoid, and those are the gray lines on our sectional aeronautical charts which denote Military Training Routes (MTR).

Just as airline pilots complete regulatory and company requirements for recurrent training or pilots participate in the Pilot Proficiency Award Program, to assure the highest level of national security, military pilots have to train to stay proficient in a wide range of airborne tactics. One particular area of training involves "low level" combat tactics practice along MTR.

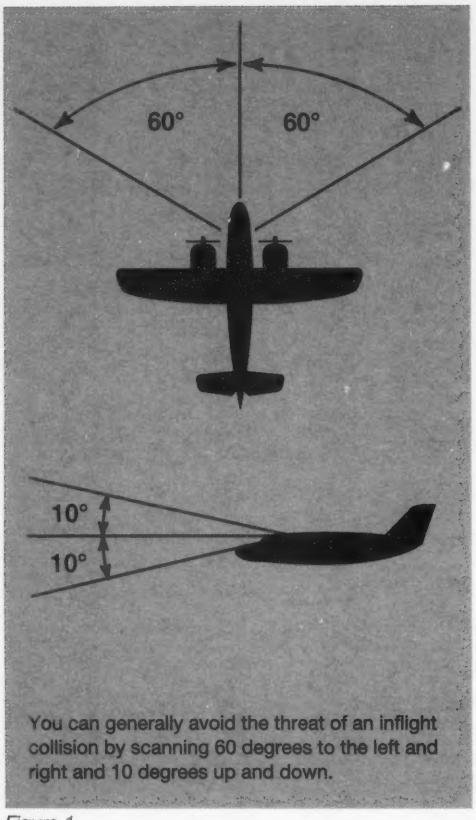
MTR are a joint FAA and Department of Defense (DOD) program where MTR are mutually developed for the specific purpose of high-speed, low altitude training. The routes above 1,500 feet AGL are developed to be flown as much as possible under IFR. Routes at 1,500 feet AGL and below are generally flown under VFR.

The aircraft used for low-level, high speed combat tactics training are so fast and the maneuvers of such a nature that a civilian pilot's best traffic avoidance tool—his or her eyes—may be neutralized unless traffic vigilance is increased. The best way to increase your vigilance is to know where MTR are, when they are active or "hot," and at what altitudes they will be used. Actually, in the case of MTR, see and avoid is best accomplished by AVOIDANCE altogether.

But First, Let's Talk About Scanning

Most midair collisions happen in VFR, during the daylight, and in the traffic pattern. The fact that fewer midairs occur during cruise may be attributable to traffic vigilance or *scanning* in a relatively unpressured environment. At the point where scanning for traffic is most important—approach and landing—we may become so involved with all the things we have to do to assure a good approach and touchdown that our scan suffers. But that's another story.

To scan properly you have to move your eyes and your head to see around the various blind spots inadvertently built into an aircraft. Not looking outside at all is, obviously, the poorest of scan techniques. Student pilots in particular have a tendency to fixate on one instrument—usually the attitude indicator—that gives them all the information they think they need to fly well. So, instructors have to work at "getting the student's head out of the cockpit." That's why we instructors spend money on those rubber, suction-cup covers to block instruments.



You can generally avoid the threat of an inflight collision by scanning 60 degrees to the left and right and 10 degrees up and down.

Figure 1.

Looking out at intervals is also poor because with aircraft closing at high speeds—even if only one is at high speed—disaster can happen in seconds.

Whipping your head quickly from side to side without stopping to focus on anything is not good scanning either, nor is staring at one spot for long periods of time.

In normal flight you can usually avoid midairs collisions by scanning an area 60° to the right and left of your center visual area. (Figure 1) This doesn't mean that you can't turn and look behind you every few scans. Studies in simulators show that if you stick to the 60° either side rule, you'll be in good shape to spot most traffic.

If you also scan 10° up and down from your level flight position, you should be able to spot any aircraft near your own altitude or climbing or descending through your altitude. Again, crane your neck once in a while and look straight up, or do S-turns or clearing turns to check beneath you.

You need to pull this all together in a consistent, efficient scan pattern. There are two basic scan patterns which have proved best for most pilots. They are collectively called the "block" system. This scan pattern is based on the theory that you can detect traffic better though a series of eye "fixations" at different points in space.

Each fix becomes the focal point of your field of vision in a block 10° to 15° wide. By fixing your eyes every 10° to 15° you should be able to detect any contrasting or moving object. Your 120° scan area (60° left and 60° right) can be mentally divided into eight to 12 blocks. One or two seconds is the minimum time for accommodating your eye to the block and detecting any object. Four to five seconds is maximum; after that you may experience "tunnel vision," fixating so long on one spot that anything around it is blanked out.

Side to side is the first method of the block system scan. (Figure 2) Begin on the far end of one side of your 120° scan area—usually the left if you're flying from the left seat. Scan from block to block, and when you reach the other side, drop your eyes down and scan the instrument panel in the opposite direction from which you started. When you reach your beginning point, start all over again. In other words, start from the left, and scan each block from left to right. When you reach the far right block, drop down and scan the instruments from right to left. Look up, and scan again from left to right, etc.

The second block system is the *front to side* scan. Start in the center block of your vision, scan left, pausing in each block, until you reach the far left block, then scan right, again pausing in each block until you reach the center. (Figure 3) Repeat this process to the right, concluding with an instrument panel scan.

Whichever block method you use, practice it and use it consistently. It will eventually become a good habit.

Blooming And Closure Rates

No matter how good your scan is—and yours has to be good since you have no control over how good the other pilot's is—when you mix low-speed aircraft with high-speed aircraft, your scan may enable you to see high-speed traffic but not avoid it. For example, at 250 knots, or 422 feet per second, an aircraft will cover a mile in just under 14.4 seconds. Some military aircraft fly at more than 540 knots, or .8 the speed of sound. The closure rate in this case would be just six seconds. This closure phenomenon is often called "blooming" because a small spot on your windscreen can in seconds become a full grown aircraft, and your pleasant flight becomes an instant nightmare. Your reaction time to take evasive maneuvers is also shortened by such rapid closure rates, and if you do manage to maneuver out of the way, you could get caught up in jet wash or vortices that could send you out of control.

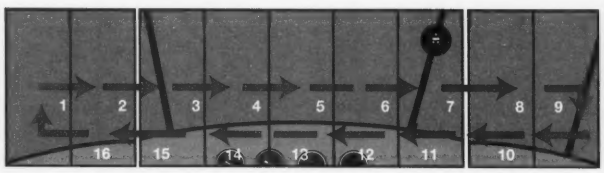


Figure 2.

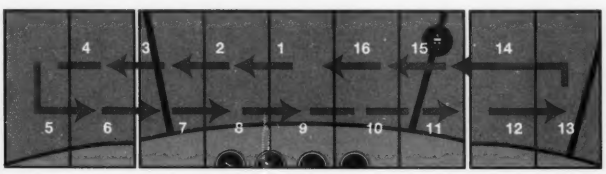


Figure 3.

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Military aircraft usually operate in so-called special use airspace, marked clearly and distinctly on charts. Civilian pilots may need permission from the controlling facility to enter such airspace or may be prohibited from it entirely. (See Chapter 3, Section 3 and 4 the *Airman's Information Manual* for a discussion of the types of special use and other airspace.) But military pilots need to conduct training flights over terrain similar to what they might be expected to find on an actual combat mission; i.e., to develop the feel for low-level bombing runs over varied terrain. Consequently, military pilots use MTR in the national airspace system that civilian pilots use everyday to facilitate this kind of training.

Given the problems that high-speed aircraft can cause for even the best scan, we may have the tendency to think in those black and white terms—either get the military aircraft out of "our" airspace or prohibit civilian aircraft from MTR. Neither option is viable, so that's why we get into the grey area, or rather the gray lines that denote MTR on sectional charts.

Everything You Ever Wanted To Know about MTR

MTR are established generally below 10,000 feet MSL for operations at speeds in excess of 250 knots. Routes may go above 10,000 feet MSL to maintain route continuity in mountainous areas. Since quite a lot of aviation occurs below 10,000 feet MSL, awareness of MTR is important in preflight planning.

MTR are designated IR, where operations are conducted under IFR regardless of the weather conditions, or VR, where operations are conducted VFR except that flight visibility must be five miles or more, and flights shall not be conducted below a ceiling of less than 3,000 feet AGL.

Take a look at the chart example on this page and find the gray lines. MTR that have no segment of the route above 1,500 feet are identified alphanumerically as IR or VR plus a four-digit number; e.g., VR1088 in Figure 4 (red arrow). MTR that have one or more segments above 1,500 feet AGL

Figure 4.

are identified as IR or VR plus a three-digit number; e.g., IR055 in Figure 4 (blue arrow). Alternate IR/VR routes or route segments use the same basic/principal route designation followed by a letter suffix; e.g., IR008A, VR1007B, etc.

Because MTR are in airspace that civilian pilots use, we are not prohibited from flying on them, in them, over them, under them, etc. But are you really interested in flying that close to routes used by aircraft that fly in excess of 250 knots? You could get more than bug splatters on the windscreen. The *Airman's Information Manual* suggests not only "extreme vigilance" but also that you contact Flight Service Stations within 100 nm of MTR you will encounter on your flight path. And you should treat that as more than just a suggestion and consider it a warning.

Although you can request MTR information in the air, preflight planning is the time to learn all you can about MTR near your route. The *Airport/Facility Directory* contains charting changes to an MTR in the Aeronautical Chart Bulletin Section. Sectional charts are revised on a six month cycle and the A/FD comes out every 56 days, as does the enroute charts.

When you get your weather information, give the briefer your route of flight and your destination and ask for MTR information. The briefer will then provide you with information on MTR activity within the flight plan area, plus an additional 100 nautical mile extension. This will normally include active times and altitudes. For additional information you will be directed to contact other en route ATC facilities. (Note: Information on route width is contained in DOD flight information publication, "Area Planning, Military Training Routes." This document is part of the reference library in FSS and AFSS. Pilots are still instructed to consult FSS for the latest information.) So if an MTR is "hot" or active, you can adjust your route accordingly. The width of an MTR is different for each and can extend for several miles on either side of the MTR centerline shown on charts. Of course, if you don't talk to FSS for your weather, you are missing the opportunity to receive some information that could save your life. Computerized weather saves time, but don't shorten what time you have by not finding out when MTR are "hot."

The long, gray lines on aeronautical charts are not areas we're not sure of; it is definite that they can be dangerous if you are not aware of all available information about military training routes.

If you are aware of their location and their active times, and you opt to fly on or near them when they're "hot" (not a smart move at all), your scan must be constant, extra vigilant, and consistent—not to mention superhuman.

Remember, while you spend four or five seconds scanning one block of airspace, a .8 Mach fighter plane could be "blossoming" in the scan block you just left or haven't gotten to yet.

Like the hot sun, or a hot stove, MTR are best avoided when they're "hot."■

Contact your local Safety Program Manager (formerly Accident Prevention Program Manager) for a schedule of safety seminars featuring special use airspace, MTR, scanning, and/or midair collision avoidance.

Change Agent and Role Model:
Eleanor J. Williams

by Stephanie Webb

Cleveland Air Route Traffic Control Center (ARTCC) recently welcomed the first African American woman to lead an FAA enroute air traffic control center.

Last November Eleanor J. Williams took the reins of the nation's second busiest enroute air traffic facility. With 500 employees, Cleveland Center provided enroute air traffic services to nearly 2.5 million customers in 1993.

From April 1993 to her selection for her current position, Williams was the assistant air traffic manager for Kansas City ARTCC in Olathe, KS. According to Chris Blum, Kansas City Center manager, Williams demonstrated her commitment to "do whatever it takes" to get the job done. "From the moment you meet her you know just where she stands on all issues," Blum said. "Her direct approach and candor on issues makes her easy to work with. She has a genuine care and concern for people, and it shows with the amount of one-on-one time she gives to individuals on and off the job."

Describing her as a "delight" to work with, Bryan Burleson, Manager, Facility Operations Branch of FAA's Central Region Air Traffic Division, said Williams had done "an all around good job" in her position as a section supervisor from 1991 to 1993. Burleson easily listed some specific leadership skills and abilities that Williams possesses which stand out as strong assets for her current position: analytical ability, organizational skills, budgeting, open style of communicating, and an ability to put together work groups. Nevertheless, she is taking over a high density air traffic facility during one of the most dramatic times in aviation history.

New and challenging responsibilities are familiar to Williams. In her 29 years of federal service—all with the FAA—she tackled tough career assignments in the face of what many would call overwhelming odds. Here are a few of the highlights:

- 1965—started federal career in Anchorage, AK as a GS-4 clerk/ stenographer for the Flight Standards Division
- 1968—entered the air traffic control career field in Anchorage
- 1971—became the first black woman to certify as an air traffic control specialist for the FAA at the Anchorage ARTCC
- 1976—promoted to staff specialist for the Anchorage ARTCC
- 1979—promoted to an area supervisor for the FAA Southern Region Air Traffic Division

Eleanor J. Williams

- 1980—promoted to a staff specialist for the FAA Southern Region Air Traffic Division
- 1985—promoted to a staff specialist at FAA Headquarters
- 1987—promoted to area manager for the Kansas City ARTCC
- 1991—promoted to section supervisor, FAA Central Region Air Traffic Division
- 1993—promoted to assistant air traffic manager for the Kansas City ARTCC

For the past seven years, Williams has been an unrelenting force in helping to move FAA Central Region to a higher level in managing all of its employees with strategies that assure every employee the opportunity to contribute his or her best to the FAA's mission. She served on several of the region's committees designed to create work environments that valued and used diversity.

From 1987 to 1992, Williams guided the Central Region National Black Coalition of Federal Aviation Employees (NBCFAE). She is credited for the 100-plus membership taking a formal step toward preparing to work and live in an ever-changing environment.

Williams has a reputation for giving of herself to others personally and through the organization she serves. In addition to NBCFAE, she is a member of the NAACP, Business and Professional Women/USA (BPW), Professional Women Controllers (PWC), Gamma Phi Delta Sorority/Gamma Beta Chapter, National Council of Negro Women, Federal Managers Association, Air Traffic Controllers Association, Heart of America Chapter of the Tuskegee Airmen, and the Second Baptist Church of Olathe, KS.

Eleanor J. Williams became the first black woman to certify as an air traffic control specialist for the FAA at the Anchorage ARTCC.

Williams "exemplifies the highest and the best of aviation role models," said LaVerne Reid, FAA Aeronautical Center, who was the 1989-90 president of the National Federation of Business and Professional Women's Clubs, Inc., of the U.S. "She provides a model career example for aviation employees. She is a model for work ethic, a model for goal settings, a model for working against the odds, a model for being an individual of faith," Reid said. "Through hours of community efforts with young people who feel that doors are closed to them, she has single-handedly provided skills, nurtured hope, and in many cases launched aviation careers. She has been a change agent for young people and left with them a motto: 'Be an agent of change, not a victim of change.'"

Perhaps there is no greater testimony to Williams' success as a role model than the fact that daughter Dana, one of her seven children, followed in her footsteps and is an air traffic controller at Topeka-Forbes Tower. For this writer Williams' powerful influence on young people was experienced after sharing a brief synopsis of the Eleanor Williams story with a young poet in Columbus, NE. The student felt compelled to write a poem called "Wings."

There is no question that Williams' unfailing energy, enthusiasm, and staunch commitment to human rights helped pave the way for others. Her efforts have not gone unnoticed or unrecognized. Awards presented to her include the Department of Transportation Secretary's Award for Excellence in EEO and the Mary K. Gooddard Award presented by the Anchorage Federal Executive Board for outstanding achievement in EEO. She is listed in the 15th, 16th, 17th, and 18th editions of Who's Who in American Women and the 49th edition of Who's Who in America. In 1990 she was selected to be a member of a Citizen Ambassador Program, the Women in Management delegation to the former Soviet Union. She was the 1991 recipient of the NBCFAE C. Alfred Anderson Award. In 1994 Heartland EEO Council recognized her outstanding leadership contributions to the FAA Central Region EEO programs, and she received the Paul K. Bohr Award for supporting human resource management and people programs.

Born in College Station, TX, Eleanor J. Williams embodies the spirit that former Congresswoman Barbara Jordan describes: "Texas is more than a place. It is a frame of mind. A Texan believes that the individual is powerful. Texas has that rugged individualism—the feeling that I, as an individual, can accomplish whatever I want and that there are no limits."

The lessons of life were planted early in Williams by her mother, who owned a laundry and grocery store in College Station, and nurtured by her sister Vanee Robinson, the eldest of six children.

It was her natural optimism, determination, and enthusiasm that lead Eleanor J. Williams to the forefront of aviation—traditionally regarded as a white male business. She did not just survive; she excelled and created a path for others to follow. ■

Ms. Webb is a duty officer in the FAA's Central Region.

Wings for Eleanor J. Williams

(excerpts)

A god-given power is yours,
my dear Eleanor,
through faith you have opened doors.
Within you I see, a fire whose passionate
flames have been set free.
You've dared others to dream; showing life
isn't impossible as it often does seem.

You've accomplished many things all
because in life you've dared and won
yourself wings.
Long ago your wings took flight, never
in darkness being lost, for you saw the
path with inner-sight.
Your faith and freedom forever shall live, for
in your you have never believed in Never.

Shondel
Eighth Grade Student
Columbus, NE
May 15, 1991

Alcohol and Flying: A Deadly Combination

by Guillermo Salazar, MD and Melchor Antuñano, MD

Alcoholic beverages are used by many to "unwind" or relax, to act as a social "ice-breaker," or as a way of altering one's mood by decreasing inhibitions. Alcohol consumption is widely accepted, often providing the cornerstone of social gatherings and celebrations. Along with cigarettes, many adolescents associate the use of alcohol as a rite of passage into adulthood.

While its use is prevalent and acceptable in our society, it should not come as a surprise that problems arise in the use of alcohol and the performance of safety-related activities, such as driving an automobile or flying an aircraft. These problems are made worse by the common belief that accidents happen to "other people, but not to me." There is a tendency to forget that flying an aircraft is a highly demanding task, requiring significant cognitive and psychomotor skills, and which takes place in an inhospitable environment where pilots are exposed to various sources of stress.

Hard Facts About Alcohol

- Is a sedative and a hypnotic
- Can be addicting
- Quickly impairs judgement and leads to behavior that could easily contribute to or cause accidents

The Erratic Effects of Alcohol

- Alcohol is rapidly absorbed from the stomach and small intestine and transported by the blood throughout the body. Its toxic effects vary considerably from person to person, and are influenced by several factors, such as gender, body weight, rate of alcohol consumption (time), and total amount of alcohol consumed.
- The average, healthy person eliminates pure alcohol at a fairly constant rate—about one-third of one-half ounce of pure alcohol per hour, which is equivalent to the amount of pure alcohol contained in any of the popular drinks listed in Table 1. This rate of elimination of alcohol is relatively constant, regardless of the total amount of alcohol consumed. In other words, whether a person consumes a few or many drinks, the rate of elimination of alcohol from the body is essentially the same. Therefore, the more alcohol an individual consumes, the longer it takes his or her body to get rid of it.
- Even after complete elimination of all of the alcohol in the body, there are undesirable effects—hangover—that can last 48 to 72 hours following the last drink.
- The majority of adverse effects produced by alcohol relate to the brain, the eyes, and the inner ear—three crucial organs to a pilot.
- Brain effects include impaired reaction time, reasoning, judgement, and memory. Alcohol decreases the ability of the brain to make use of oxygen. This adverse effect can be magnified as a result of simultaneous exposure to altitude, characterized by a decreased partial pressure of oxygen.

TABLE 1 Amount of Alcohol in Various Alcoholic Beverages

Type Beverage	Typical Serving (oz.)	Pure Alcohol Content (oz.)
Table Wine	4.	.48
Light Beer	12.	.48
Aperitif Liquor	1.5	.38
Champagne	4.	.48
Vodka	1.	.50
Whiskey	1.25	.50

- Visual symptoms include eye muscle imbalance, which leads to double vision and difficulty focusing.
- Inner ear effects include dizziness and decreased hearing perception.
- When other variables are added, such as sleep deprivation, fatigue, medication use, hypoxia induced by altitude, flying at night, or flying in bad weather, the negative effects are significantly magnified.

Table 2 summarizes some of the effects of various blood alcohol concentrations. The blood alcohol content values in the table overlap because of the wide variation in alcohol tolerance among individuals.

Studies of How Alcohol Affects Pilot Performance

Pilots have shown impairment in their ability to fly an ILS approach or to fly IFR and even to perform routine VFR flight tasks while under the influence of alcohol, regardless of individual flying experience.

The number of serious errors committed by pilots dramatically increases at or above concentrations of 0.04% blood alcohol. This is not to say that problems don't occur below this value. Some studies have shown decrements in pilot performance with blood alcohol concentrations as low as 0.025%.

Studies of Fatal Accidents

Table 3 shows the annual alcohol-related pilot fatalities in general aviation accidents between 1987 and 1993, as reported by the Forensic Toxicology Research Section of the FAA Civil Aeromedical Institute. This information is based on the analysis of blood and tissue sample from pilots involved in fatal aviation accidents.

TABLE 2 Some of the Effects of Various Blood Alcohol Concentrations

Blood Alcohol	Effects at Ground Level (*Concentration may be amplified by altitude)*
.01-0.05* (10-50 mg%)	Average individual appears normal
0.03-0.12 (30-120 mg%)	Mild euphoria, talkativeness, decreased inhibitions, decreased attention, impaired judgement, increased reaction time
0.09-0.25 (90-250 mg%)	Emotional instability, loss of critical Judgement, impairment of memory and comprehension, decreased sensory response, mild muscular incoordination
0.18-0.30 (180-300 mg%)	Confusion, dizziness, exaggerated emotions (anger, fear, grief), impaired visual perception, decreased pain sensation, impaired balance, staggering gait, slurred speech, moderate impaired impaired incoordination
0.27-0.40 (270-400 mg%)	Apathy, impaired consciousness, stupor, significantly decreased response to stimulation, severe muscular incoordination, impaired impaired to stand or walk, vomiting, incontinence of urine and feces.
0.35-0.50 (350-500 mg%)	Unconsciousness, depressed or abolished reflexes, abnormal body temperature, coma; possible death from respiratory paralysis (450 mg% or above)

* Legal limit for motor vehicle operation in most states is 0.08 or 0.10% (80-100 mg of alcohol per ml of blood).

TABLE 3 Fatal General Aviation Accidents with Alcohol as Possible Contributing Factor

Year	General Aviation Pilot Fatalities	Pilots with Blood Alcohol Concentrations of 0.02% or more*	Pilots with Blood Alcohol Concentrations of 0.04% or more*
1987	341	13.5%	8.5%
1988	364	6.6%	6.3%
1989	349	12.9%	8.0%
1990	367	14.2%	7.9%
1991	379	12.9%	7.9%
1992	396	11.9%	7.3%
1993	338	12.7%	8.9*

*Some cases may include alcohol produced after death by tissue decomposition. For comparison purposes, total general aviation fatalities in 1992 were 860 and in 1993 were 715.

Hangovers are Dangerous

A hangover effect, produced by alcoholic beverages after the acute intoxication has worn off, may be just as dangerous as the intoxication itself. Symptoms commonly associated with a hangover are headache, dizziness, dry mouth, stuffy nose, fatigue, upset stomach, irritability, impaired judgement, and increased sensitivity to bright light. A pilot with these symptoms would certainly not be fit to safely operate an aircraft. In addition, such a pilot could readily be perceived as being "under the influence" of alcohol.

You are in Control

Flying, while fun and exciting, is a precise, demanding, and unforgiving endeavor. Any factor that impairs the pilot's ability to perform the required tasks during the operation of an aircraft is an invitation for disaster.

The use of alcohol is a significant self-imposed stress factor that should be eliminated from the cockpit. The ability to do so is strictly within the pilot's control.

FAR § 91.17

The use of alcohol and drugs by pilots is regulated by FAR § 91.17. Among other provisions, this regulation states that no person may operate or attempt to operate an aircraft:

- within eight hours of having consumed alcohol
- while under the influence of alcohol
- with a blood alcohol content of 0.04% or greater
- while using any drug that adversely affects safety

DOT Notice on Limitation of Alcohol Use by Transportation Workers

This notice was published in Vol. 59, No. 31 of the *Federal Register* on February 15, 1994. It indicates an employee will have to be removed from safety sensitive duties for eight hours or until a test result below 0.02% is obtained if the employee:

- is found to have an alcohol concentration of 0.02% or greater but less than 0.04%
- is under the influence of or impaired by alcohol, as indicated by behavior, speech, and performance indicators of alcohol misuse
- is unable to furnish a "reasonable suspicion" alcohol test result

Keep in mind that regulations alone are no guarantee that problems won't occur. It is far more important for pilots to understand the negative effects of alcohol and its deadly impact on flight safety.

General Recommendations

1. As a minimum, adhere to all the guidelines of FAR § 91.17:
   - eight hours from "bottle to throttle"
   - do not fly while under the influence of alcohol
   - do not fly while using any drug that may adversely affect safely
2. A more conservative approach is to wait 24 hours from the last use of alcohol before flying. This is especially true if intoxication occurred or if you plan to fly IFR. Cold showers, drinking black coffee, or breathing 100% oxygen cannot speed up the elimination of alcohol from the body.
3. Consider the effects of a hangover. Eight hours from "bottle to throttle" does not mean you are in the best physical and mental condition to fly or that your blood alcohol concentration is below the legal limits.
4. Recognize the hazards of combining alcohol consumption and flying.
5. Use good judgement. Your life and the lives of your passengers are at risk if you drink and fly.

Ideally, total avoidance of alcohol should be a key element observed by every pilot in planning or accomplishing a flight.

Alcohol avoidance is as critical as developing a flight plan, conducting a good preflight inspection, obeying ATC procedures, and avoiding severe weather. ■

This article is available free from FAA Civil Aeromedical Institute, Aeromedical Education Division, AAM-400, P.O. Box 25089, Oklahoma City, OK 73125. Order enough for your entire flight department.

Osborn's Last Flight

IN MEMORIUM

Robert Osborn
1904–1994

When we introduced the Old Cap'n last year, we noted he was following in the footsteps of "Pappy" and "The Engine Doctor," fictional characters we've used to get safety points across in the past. The cartoons of the Old Cap'n also follow in some very big footsteps, now stilled.

For nearly 20 years, the back covers of *FAA General Aviation News* and *FAA Aviation News* featured renown artist Robert Osborn. Larger than life himself at six foot two, Osborn—as he signed most of his works—always delivered several iterations of his cartoons in oversize, white envelopes, accompanied by notes and letters to the staff in his distinctive calligraphy. Early last year we received our first message from him in many years, when we reprinted a weight and balance cartoon of his. It basically said, "I'm still around after 50 years!" I and the magazine's senior associate editor, Louise Oertly, were pleased and happy to see it. Although neither of us had met the man in person, we had communicated by letter and by phone for many, many years. (He once sent a reminder that our contracting office had not paid him—a simple, white envelope addressed to the former editor with an outstretched, grasping, skeletal hand drawn on it.) Unfortunately, at the end of that year, Osborn put down that witty, acerbic, and accurate pen for the last time. On December 20, 1994 he died at his home in Salisbury, CT of complications from bone cancer. He was 90.

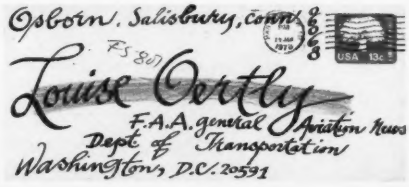
Following are excerpts from a December 22, 1994 *New York Times* obituary written by Mel Gussow.

"For more than 50 years, Mr. Osborn's sardonic and often savage drawing in books and magazines have arrested readers with their images of bloated power, violence and death. At the same time he could be wittily ironic about society's pretensions, spoofing subjects like psychiatry, suburbanites and social climbing.

"Asked how he thought of himself, he said he was primarily 'a drawer' and an artist with moral convictions..."

"He was born in Oshkosh, WI. He attended the University of Wisconsin before transferring to Yale University, where he was art editor of the Yale Record. After graduation he studied painting in Rome and Paris. Back in the United States he taught art and philosophy at the Hotchkiss School in Lakeville, Conn. Soon he moved from painting to caricature...

"At the outbreak of World War II, he enlisted in the Navy with the hope of becoming an aviator. He was assigned to an information unit...and learned the art of speed drawing for training manuals. As a Navy officer, he created a cartoon character named Dilbert, a blunderer who violated rules of military safety.



"Through the years he continued to draw for the Navy, publishing his cartoons in *Naval Aviation News*, replacing the character of Dilbert with a wise old Navy pilot named Grampa Pettibones." (sic) The characters he used for *FAA Aviation News* had no names but were easily recognizable as a civilian version of Dilbert, bumbling as he pre-flighted, oblivious to approaching, toothy thunderstorm, and unrepentant issue after issue as he added to his aviation mistakes.

Osborn also wrote and illustrated books on baseball, fishing, shooting quail and ducks, among others, usually satiric and biting.

His wife, Elodie, died in January 1994, but he is survived by two sons, Nic and Eliot, both of Taconic, CT, and two granddaughters.

In the mid-1980's Osborn expressed an interest in slowing down and asked that we not contract with him anymore. It was a sad day for the magazine and a unwelcome end to a wonderful association.

The staff of *FAA Aviation News* wish Osborn the best on the next stage of his journey.—*The Editor*

Keeping the Fun in Sun 'n Fun

by H. Dean Chamberlain, *Associate Editor*

It seems like only yesterday we were writing about the 1994 Sun 'n Fun Fly-In. It is amazing how fast a year flies by (pun intended). The good news is April 9th, the official starting date for the 21st annual Sun 'n Fun EAA Fly-In in Lakeland, FL, is only a few short weeks away. For those who have not completed their plans to go to Sun 'n Fun, it's not too late. But you need to do some good planning in a short amount of time. At this late date, your biggest problem may be finding nearby lodging.

Brief Overview and FAA Safety Seminar Schedule

This overview of Sun 'n Fun 1995 provides guidance on where to find needed flight planning information, some helpful operating hints, and a few safety tips to help make your trip safer and more enjoyable.

Included in this overview is the schedule of the FAA safety seminars at the FAA Aviation Safety Center Building. The seminar schedule is subject to last minute changes and cancellations. Please check the daily listing at Sun 'n Fun for any changes.

Current Charts, NOTAMS, and Flight Plans

All pilots are reminded to use current charts and the latest NOTAM information when planning their trip to Lakeland. There is a special Sun 'n Fun NOTAM that describes in detail all arrival, landing, and departure information by type of flight plan and aircraft. Contact your nearest Flight Service Station for a copy of the Special Air Traffic Management Plan NOTAM for Sun 'n Fun 1995. The plan is also being printed in the published FAA Notices to Airmen (NOTAMS) starting with the March 2 issue.

The last thing you should do before departure is to file a flight plan. VFR pilots are reminded to file, open, and then close their flight plans. All pilots can expect the possibility of an en route delay because of traffic volume and should plan for extra fuel in addition to required reserves. VFR pilots should also consider adding 30 minutes to their ETE's just in case of a possible delay or be prepared to extend their flight plans en route. Pilots may also want to review the *Airman's Information Manual's* (AIM) section on emergency procedures. Remember if you need help, it is better to contact ATC, and even declare an emergency if need be, then to wait until it is too late for help to do you any good. A review of the AIM dealing with fuel terminology might be appropriate for those not familiar with the revised phraseology.

Radar Balloons, MTR, Traffic, and Other Cautions

For VFR pilots not familiar with the radar surveillance balloons moored along the Florida coasts to detect drug smugglers, those pilots need to carefully review their charts for the small round restricted areas enclosing the balloons and avoid those areas. Please check the accompanying warning message located near the balloon restricted areas that reminds pilots of the danger by stating, "Caution: strobe lights and unmarked balloon on cable to 15,000 MSL."

Pilots are also advised to check their charts and NOTAMS when flying throughout the southeast because of the number of military training areas located there. Everyone needs to be especially aware of the number of military training routes that crisscross the area. All pilots, but especially VFR pilots, should contact their nearest FSS when flying near any military training route to see if the route is active. No one needs to meet a high-speed military jet head-on while flying to Lakeland. For that matter, no one needs to meet a low-speed family commuter on the way to Lakeland either.

High-speed or low-speed, a midair collision will ruin everyone's day. To reduce the risk of a midair collision, all pilots are urged to use extreme caution when flying in, around, through, and away from the Lakeland area during this time period because of the number of aircraft expected at Sun 'n Fun. Pilots should fly with their landing lights and strobes (if so equipped) on when operating within 30 miles of Lakeland during this time. Due to the diversity of aircraft traveling to and from Sun 'n Fun, pilots can expect to see any type of aircraft from slow-speed ultralight

vehicles to high-speed business jets to warbirds to helicopters flying to, from, and near Lakeland. Because of this diversity, pilots may need to adjust their visual scanning technique to better "see" such traffic near Lakeland. Because of this mixture of aircraft, all pilots are advised to follow the special Sun 'n Fun ATC operating procedures. These procedures contain both arrival and departure information for all aircraft landing at Lakeland during the period of April 7 through April 15. By knowing the various routing information and procedures, you can avoid any possible conflicts with dissimilar traffic.

Pilots should check 121.5 MHz on their radios periodically en route to and from Lakeland to help locate any possible accident sites as well as checking the frequency prior to radio shutdown to check for an inadvertent ELT activation.

Special Air Traffic Management Plan

Like last year, we can only provide a brief review of the FAA Special Air Traffic Management Plan for Sun 'n Fun. Each pilot is responsible for reviewing the complete plan as part of his or her preflight actions. All pilots are expected to comply with the procedures outlined in the Plan.

In talking to the controllers working at Sun 'n Fun last year, we find that their best advice for all pilots arriving or departing Lakeland during this time is to simply keep their aircraft moving. The smoothness of the operation is based upon controllers expecting all pilots to know and follow the guidance in the NOTAM. The controllers working arrival procedures away from the field, those working the tower, and those working the runway all expect identified aircraft to keep moving in an orderly flow throughout the process until the aircraft are safely tied down. If an aircraft suddenly goes around, stops on the runway, or does something else unexpected in a non-emergency situation, it causes problems for everyone. The idea is to quickly and safely get all aircraft on the ground as soon as possible and off the runway to the parking areas without everything becoming backed up. For departures, the controllers want to get everyone safely on their way as soon as possible for the same reason.

To avoid any stall/spin accidents, all pilots are asked to review, and better yet, practice flying their aircraft at minimum safe speeds before arriving at Lakeland. Pilots have the added responsibility to know and understand the operating limitations of their aircraft and to be able to operate within those limitations before they become "Number 22 in line" to land behind a slower aircraft with a faster aircraft right behind them. Small planes may have to land faster than normal, while faster aircraft may have to land slower, but regardless of the speed of other aircraft, no pilot must compromise his or her aircraft's safety by trying to fly at an unsafe airspeed. If anyone has any type of problem, they should contact ATC immediately, be able to explain the problem, and propose a possible course of action. Everyone, the EAA, all airman, and the FAA, wants this event to be the safest in history. Everyone needs to do his or her part to ensure that happens.

Airport Manager's Special Notice

1. The control tower will be open and the Class D airspace will be in effect from 0630 to 2130 Eastern Daylight Time (EDT)

2. These special procedures will be in effect only from 0700 to 1900 EDT on April 7 through 15, 1995.

3. DO NOT OPERATE in the Class D airspace SOUTH of the airport. This area is reserved for aircraft using other authorizations and procedures.

4. Student training flights are highly discouraged during this event. This includes student solo cross-country flights, touch-and-go landings, low approaches, and practice instrument approaches.

5. Limited grass-field operations can be accommodated. For "Special Grass-Field Authorization and Procedures," contact: Sun 'n Fun(EAA) Fly-In, Inc., P.O. Box 6750, Lakeland, FL 33807, telephone (813) 644–2431.

6. If Lakeland Linder Regional Airport is IFR, taxiing is prohibited for all aircraft except those with IFR clearances.

Airport Closure Hours

The airport will be closed daily from April 9 through 15 from 1400 to 1800 EDT during the aerobatic demonstrations. ATC will not permit arrivals and departures during these periods. Exceptions to these procedures require prior approval by the airport manager, EAA, and ATC.

The airshow operations area is from the surface to 10,000 feet MSL within a five-statute-mile radius of Lakeland Linder Regional Airport.

Runway, Taxiway, and Approach Closures/Shutdown

Runway 5/23 will be closed from April 5 through 18. Several taxiways are closed as indicated by orange cones.

The ILS and NDB/GPS Runway 5 will be shut down from April 5 through 18.

VOR Runway 9 Approach will not be available from April 5 through 18.

Helpful Hints

Do not make unnecessary radio transmissions where procedures clearly state MONITOR THE FREQUENCY ONLY.

Rock your wings with "GUSTO" for airborne acknowledgments.

Watch for ORANGE-SHIRTED AIR TRAFFIC CONTROLLERS giving hand signals for takeoff clearance and exiting runways.

After landing, DO NOT STOP ON RUNWAYS and expedite clearing the runway.

DO NOT STAND ON, WALK NEAR, OR WALK ACROSS RUNWAYS.

A waiver has been issued reducing the arrival and departure aircraft separation standards for Category 1 and 2 aircraft. This is primarily for single engine and light, twin-engine aircraft.

FAA Flight Planning Services

The St. Petersburg, FL, Automated Flight Service Station (AFSS) provides complete flight planning and information services 24 hours daily. In the region it can be accessed by telephone by calling 1–800–992–7433 (1–800–WX–BRIEF).

Sun 'n Fun

1995 Sun 'n Fun SAFETY SEMINAR SCHEDULE

Meetings are held in the FAA Aviation Safety Center Building

Saturday April 8

0800-0930	Aerospace Educators
1130-1230	FAA ARAC Activities
1300-1400	METAR/TAF
1430-1530	DATA Link
1600-1700	Young Eagles Ground School
1800-1900	SPM-Closed Meeting

Sunday April 9

0630-0730	Balloon
0800-0830	Opening
0830-0930	AOPA/ASF-Stall/Spin
1000-1100	Rod Machado-Aviation Judgement
1130-1230	Ultralight Preventive Maintenance
1300-1400	AOPA ASF-GPS
1430-1530	Hal Becker-Charts
1600-1700	Ultralight Open Forum
1800-1900	How to Avoid Pilot Error Accidents
1930-2030	Steel Spine, Iron Will

Monday April 10

0830-0930	AOPA ASF-John & Martha King
1000-1100	Rod Machado-Non-Pilot Guide to Landing an Airplane
1130-1230	Meet FAA
1300-1400	AOPA ASF-Stall/Spin
1430-1530	Dr. Jon L. Jordan/Medical Concerns
1600-1700	Fuel
1800-1900	Survival
1930-2030	GAMA

Tuesday April 11

0830-0930	Top Ten Engine Failures
1000-1100	Rod Machado-Nifty VFR Pilot Tips & Techniques
1130-1230	Putting Polish on your Takeoffs & Landings
1300-1400	AOPA ASF-Tactical Weather
1430-1530	AOPA ASF-Tactical Weather
1600-1700	Ultralight Access, Uses, & Abuses
1800-1900	Bill Kershner-Another Look at Spins
1930-2100	Ret. USAF Gen. Spruance-Crashworthiness

Wednesday April 12

0830-0930	AOPA ASF-GPS
1000-1100	Bill Kershner-Another Look at Spins
1130-1230	Flight Testing Amateur Builts
1300-1400	AOPA ASF-John & Martha King
1430-1530	Aviation Medicine Update
1600-1700	Ben Morrow-The Last Thing An Airplane does is Fly
1930-2130	Hollywood Canteen '42

Thursday April 13

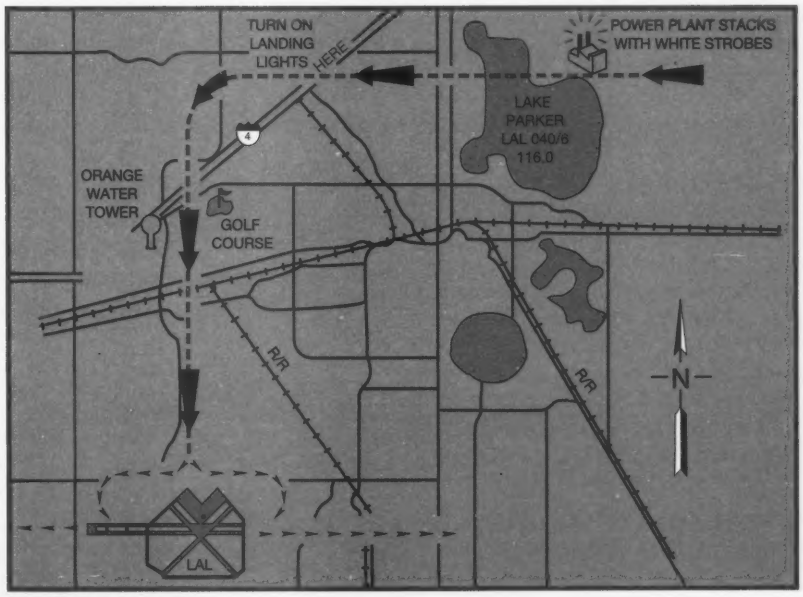
0830-0930	Experimental Aircraft Accidents
1000-1100	Rod Machado-Nifty IFR Pilot Tips & Techniques
1130-1230	Over Water Survival
1300-1400	AOPA ASF-Tactical Weather
1430-1530	AOPA ASF-Tactical Weather
1600-1700	Parts for A/W Aircraft
1800-1900	FAA Safety Forum Online
1930-2030	Earhart

Friday April 14

0830-0930	Aircraft Certification
1000-1100	National Assoc. of Flight Instructors
1130-1230	Preventive Maintenance
1300-1400	Human Factors
1430-1530	Gyros
1600-1700	Ultralights and FAR Part 103
1930-2130	Hollywood Canteen '42

Saturday April 15

0830-0930	Aviation Safety
1000-1100	Rod Machado-Aviation Humor
1130-1230	Young Eagles Ground School
1300-1400	ICAO Impact
1430-1530	METAR/TAF
1800-2100	Sun 'n Fun Awards Ceremony



Lake Parker approach

Frequencies

- **ARR ATIS 118.65**
- **DEP ATIS 135.15**
- **LAKE PARKER ... 124.5**
- **GROUND 121.4**
- **LAL VOR 116.0**
- **LAKELAND UHF .. 380.25**

DO NOT OPERATE IN THE CLASS D AIRSPACE SOUTH OF RUNWAY 9/27 WITHOUT CURRENT CREDENTIALS RECEIVED AT HOURLY BRIEFINGS AT SUN 'N FUN.

A temporary non-automated flight service station will be located at the FAA Aviation Safety Center Building at Sun 'n Fun from April 7 through 16. Pilot weather briefings and flight planning services are available at the temporary FSS from 0600 to 1900 (Local) daily during the Fly-In.

Because of expected frequency congestion, air filing of flight plans and requests for full-route weather briefings are discouraged between 0600 and 1900 (Local) daily on the St. Petersburg AFSS frequencies.

Because of anticipated briefer workload, pilots are encouraged to contact the FSS as early as possible for their briefs and to file their flight plans.

INBOUND VFR FLIGHT TO LAKELAND

All VFR aircraft are expected to use the Sun 'n Fun Lake Parker arrival procedure found in the Sun 'n Fun NOTAM. As noted in the NOTAM, the Tampa and Orlando Class B airspace's are in effect during Sun 'n Fun. Pilots must remain outside of the respective Class B airspace unless cleared by the respective ATC to enter.

As previously noted, pilots can expect possible en route delays and must plan for such delays. The key is to have enough fuel on board for any such delay. Any such delays that will extend you flight plan beyond your ETE must be compensated for by amending your flight plan with the nearest FSS.

Pilots are asked to ensure the color of their aircraft is listed in the remarks section of their flight plans. Pilots may want to cancel their VFR flight plans while approaching their destination airport because there may be up to a 30-minute parking delay.

When contacting St. Petersburg AFSS, please use your complete call sign and what frequency you are listening on.

You can cancel your flight plan at the FSS in the FAA Aviation Safety Center or by calling 1–800–992–7433 or by calling Lakeland Radio on 127.1.

LAKE PARKER VFR ARRIVAL

(See NOTAM's for complete details)

When you are 20 to 30 miles from Lakeland, listen to ATIS— 118.65 MHz—for landing and special information. When volume exceeds the Airport's acceptance rate, VFR holding will be required before you reach, or once you arrive, over Lake Parker. As you approach Lake Parker (Lakeland VORTAC 040/6), *turn your TRANSPONDER "OFF," MONITOR Lake Parker Arrival on 124.5,* and fly westerly over the powerplant smokestack with white strobe lights, which is located at the north end of Lake Parker. Expect heavy air traffic, some without radios, in this area. All aircraft should maintain 100 mph, at 1,000 feet MSL, inbound from Lake Parker. Aircraft unable to slow to this speed safely should maintain 150 mph at 1,500 feet.

Controllers located on the ground at Lake Parker will contact you, using your aircraft "color" and "type" to provide sequencing and other arrival and traffic pattern information. They will contact you in the vicinity of the north powerplant and may ask you to "rock your wings"—do so with "gusto"—as an acknowledgment for instructions.

REMAIN IN TRAIL TO THE AIRPORT—NO SIDE-BY-SIDE SEPARATION.

VFR HOLDING AT LAKE PARKER

If VFR holding becomes necessary, the Lake Parker holding pattern will be used. A lead aircraft will be instructed to turn left and proceed southbound over the west shore of Lake Parker, continuing counter-clockwise around the Lake. All other aircraft will be instructed to follow the leader in single file. Traffic in the Lake Parker holding pattern will be monitored by controllers located on the west side of Lake Parker.

DO NOT PROCEED past Lake Parker without a clearance to do so.

TRAFFIC PATTERN

All arriving aircraft will enter the Class D airspace only via the Sun 'n Fun—Lake Parker Arrival Procedure. Only left traffic for Runway 9L or right traffic for Runway 27R will be used with downwind leg entry close to the airport over Airport Road. NOTE: This runway is a narrow strip 50 feet wide, which is usually a taxiway. DO NOT land on the main, wide, Runway 9R/27L, unless specifically instructed by the Control Tower.

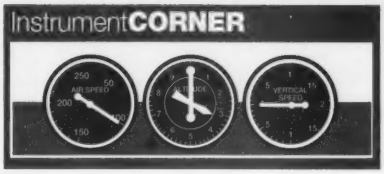
Use caution for special events and fly-by aircraft using the main runway with opposite-direction base leg entries. All landing traffic must remain alert for possible radio or light signal wave-off from the Tower. RED SMOKE OR HAND SIGNALS from controllers located near the approach end of the runway in use may also be used to signal wave-off. Plan landing so as to clear the runway as soon as possible on a hard surface.

Pay close attention to the location of the DISPLACED thresholds on Runways 9L and 9R. They will be identified by a flashing strobe and light bar located on each side of both runways.

Conclusion

This is a highly fragmented overview of air traffic procedures at Sun 'n Fun. The complete FAA/airport/Sun 'n Fun plan for the safe operation of aircraft flying to and from the Lakeland, FL area can only be found in the ATC NOTAM. We cannot over-emphasize the importance of having current charts and the Sun 'n Fun published operating procedures. Because of the number of aircraft expected in the Lakeland area, every pilot is cautioned to maintain a careful watch for other aircraft throughout the central Florida area.

Keep the "fun" in Sun 'n Fun and have a safe flight. ■



Several readers wrote about ILS outer markers and flight visibility. We have combined their letters into a single Instrument Corner since both involve IFR procedures.

• Outer Marker and Flight Visibility

I am writing this letter to argue my position, once again, regarding two previously answered questions. The first was from the March 1993 issue entitled "Outer Marker Approach," and the second was from the April 1993 issue entitled "Visibility Defined."

Flight Forum published, in the November-December 1993 issue, responses to my letter regarding the two questions identified above.

First, my original comments regarding the outer marker requirement (or lack thereof) still stand. After checking once again with all available information, in addition to some of my well-informed colleagues, I still believe your original response to the question asked was incorrect. Flight Forum indicated that an ILS approach could not be flown (was not authorized) without an Outer Marker, or authorized substitution. Your response is contrary to the information contained in FAA Order 8260.3B, page 43 (dated 411/83), Table 9, Precision Approaches" footnote number 4.

This information, which is also found in various other FAA documents, including AIM, and references, makes it abundantly clear that an Outer Marker, or authorized substitute, is not a requirement for an ILS approach. A Final Approach Fix (FAF) is required in all cases for a full ILS approach to be completed. The FAF in a full ILS approach is the glideslope intercept altitude that is identified by the lightning bolt symbol (on government plates).

I firmly believe that if an OM was NOTAM'd out of service at a particular airport and this fact dissuaded a pilot from flying a full ILS, he would be short-changing himself.

The answer to the entire question regarding what is, or is not, required for an ILS approach (conducted under FAR Part 91) can normally be found in the minimums section of an instrument approach plate. Reading and understanding this section speaks for itself and can generally lead to suitable conclusions regarding the proper conduct of the approach. By the way, Jeppesen advises that they will be removing the "MM out" column in their charts as the charts are revised for other reasons. Therefore, some charts may still have a "MM out" column.

The second point that I would like to redress concerns Flight Forum's Visibility Defined question and answer in the April 1993 issue. The responses to my comments appear in the November/December 1993 issue.

I would like to confine my comments to the issue of landing visibility requirements, which I believed I was trying to do when I forwarded a copy of the relevant FAR "P" pages. Again, my previous comments remain the same. I would like to add, however, that the regulation (in FAR Part 91) speaks for itself with respect to this issue. Specifically, FAR 91.175 (d) indicates that a pilot may not land an aircraft unless the flight visibility" is at least that which is prescribed in the instrument approach procedure. The term "flight visibility" is unambiguous.

In my opinion, the bottom line is that the pilot, in the case of landing subsequent to an instrument approach (to a civil airport under FAR Part 91), is required and authorized to determine if the "flight" visibility is at least equal to that which is published as the minimum in the instrument approach procedure. The reported ground visibility would not be the determining factor; the pilot's flight visibility is controlling.

For those operations that require specific takeoff visibility minimums, I absolutely concur that the reported (ground) visibility is the controlling factor.

Thanks again for publishing a very informative and thought-provoking magazine.

Robert Anderson
Scottsdale, AZ

I would also like to take issue with the pilot who submitted the question when he states that "the marker by itself provides very little information to the pilot." For many years, the crossing altitude of the glide slope has been published at the marker site on an approach chart profile and has been used to validate the glide slope against the altimeter. If a glide slope has shifted, this was a good way to catch it.

I'm enjoying your publication.

Patricia W. Malone
Marietta, Georgia

I believe a response that specified the purpose of the OM for an ILS approach would have been more helpful to Mr. Anderson. By checking the altimeter with the published GA altitude AT THE MARKER as one flies over it, one can 1) ensure that he is not on a false GS but more importantly 2) check the accuracy of his GS equipment and since there is no other way for a pilot to do so, the marker's purpose for an ILS approach would then be quite apparent. In all my years of teaching, I find that there is a widespread misunderstanding of the function of an OM on an ILS approach .

Lyn Carlson
Santa Ana, CA

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may no appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Send letters to Editor, FAA Aviation News, AFS-810, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463. INTERNET address: Phyllis-Duncan@ mail.hq.faa.gov

We want to thank everyone for taking the time to respond to these issues. The various comments we received reflect strong opinions both about the outer marker's (OM) role in an ILS approach as well as the question of visibility. Everyone had good reasons for their comments including King Povenmire of Eugene, OR, and Robert V. Williamson of Orange Park, FL, whose letters we did not print.

We were wrong in stating that without an OM, an ILS could not be flown. First, the regulatory basis for the outer marker as well as the visibility issue is FAR § 91.175, Takeoff and landing under IFR. Paragraph (d) of that section states, "No pilot operating an aircraft, except a military aircraft of the United States, may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used." This rule does not apply to all types of operations. For example, FAR Parts 121 and 135 operations have more restrictive requirements.

FAA Handbook 8260.3, *United States Standard for Terminal Instrument Procedures* (TERPS), outlines how instrument procedures are designed. Both the FAR and TERPS discuss the requirement for an OM as part of an ILS.

At issue in our April 1993 answer to the Instrument Corner "Visibility Defined" is the fact that FAR Part 91 operators can continue an instrument approach down to minimums even though conditions are reported below minimums for the approach. This gives a pilot the opportunity to see if he or she has the flight visibility to complete the approach. Some readers objected to our use of the term "slant range visibility" when describing the procedure.

Although not regulatory, we used the term because at some point during an instrument approach in IMC, a pilot's visibility is going to be some function of a slant range value, particularly if the obstruction to vision is ground based, such as fog. In such conditions, one's ability to see through ground fog may vary from good—while looking down through it from altitude—to poor when near the ground looking through it horizontally during the critical landing phase. Hence the reason for ground-based visibility reporting for RVR and other visibility reports.

Whenever a FAR Part 91 operator goes down to minimums to see if he or she has the minimum flight visibility needed to complete the approach when reported conditions are below published minimums, the pilot needs to exercise care and good judgement and to go "missed approach" if it is not safe to land. As always, FAR § 91.3, Responsibility and authority of the pilot in command, applies. In case of an accident or possible enforcement action, the legal determination of pilot responsibility might come down to a determination based upon a pilot's statement of flight visibility or a recorded weather report. The important point of this discussion is flight safety and good pilot decision making. As accident reports will confirm, pilot descents to minimums in questionable IMC and especially at night have contributed to many accidents. The key is, as one of my old instructors once said, "When in doubt, go around!"

Regarding the question of the outer marker, paragraph (k) of FAR § 91.175 lists the OM as part of a complete ILS. The paragraph states under what conditions and circumstances alternate means of identifying the OM can be used.

Regarding the future status of the middle marker (MM), you are right. FAA intends to eliminate the MM from the ILS as a cost-cutting means. The cost of maintaining MM's does not equate to a comparable level of safety that justifies the expense of keeping the MM's.

To get us out of the hole we dug for ourselves, we need to break this issue down into three parts. First, we have already discussed the FAR and TERPS requirements for an ILS. OM's, or an acceptable substitute, are a component of a full ILS. We don't think anyone will disagree with this point.

Our second point is how ATC clears a pilot for an ILS. FAA Order 7110.65 is the reference. ATC can clear a pilot for an ILS with inoperative components. When ATC clears a pilot for an ILS approach with an inoperative glideslope, ATC will tell the pilot that the glideslope is out of service. Outer markers can be one of those components.

What a pilot does when cleared for an ILS approach leads to our third point which is the pilot's responsibility when flying any approach. When ATC clears a pilot for an ILS with inoperable components, it is up to the pilot to determine—based upon the requirements listed for the approach being used and associated inoperative equipment tables—the operating equipment in his or her aircraft and up to the pilot's skill and proficiency to decide if he or she can fly the approach.

Depending upon which component of an ILS fails, the precision approach may become a non-precision procedure with a corresponding change in visibility and/or ceiling requirements.

According to the TERPS, paragraph 913, when the localizer fails an ILS approach is not authorized. When the glide slope becomes inoperative or is not available, the ILS reverts to a non-precision approach system. When other components become inoperative the ILS may continue in use with the landing minimums, as prescribed in TERPS' paragraph 350.

One last comment, or another shovel-full deeper depending upon your viewpoint, TERPS paragraphs 922 through 930 point out that although the FAA tries to locate the glide slope interception point—the lightning bolt on ILS approach charts—at the outer marker and coincidental with a designated final approach fix (FAF), it may not always be possible; to wit, "At locations where it is not possible for the point of glide slope intercept to coincide with a designated FAF, the point of glide slope interception shall be located PRIOR to the FAF." Every pilot flying an ILS must understand the chart symbology both for a full ILS and one with inoperative components and the variations between a precision FAF and a non-precision FAF.

FAA Deputy Administrator Linda Hall Daschle and Rep. James Oberstar (seated, lower left)

NEW PILOTS—THE NEXT GENERATION

Late last year the National Air Transportation Association (NATA) brought together aviation industry and government leaders in a forum to discuss ideas and strategies that would preclude a severe pilot shortage early in the next century. It has been estimated that with airline pilot retirements in the upcoming years, approximately 53,000 new airline pilots will be needed during the first decade of the 21st Century. Projections are for only 41,000 to be available through current military and civilian training options.

James K. Coyne, NATA's president, invited representatives from the major aviation "alphabet" groups, the aviation media, the FAA, and the U.S. Congress to discuss the possible dearth of professional pilots. FAA Deputy Administrator Linda Hall Daschle put it this way: "As early as the year 2000, there could be a long line of aircraft waiting for takeoff—but with no pilots. If we do nothing or too little [to alleviate this], we are doomed to a faltering aviation community and national economy." Ms. Daschle went on to describe how an airport in a community contributed to not only the community's travel convenience but to its economy in ways that are not always obvious.

The solution, said Daschle, is "total, unified partnership" with the aviation industry. She added that FAA's "Contract with America" would be to "fill the cockpits with well-trained crews of men, women, and minorities of both sexes."

Rep. James Oberstar (D-Mn.), outgoing chair of the House of Representatives' Aviation Subcommittee, echoed Daschle's comments and added that a strong, vital general aviation industry should be the source of the next generation of pilots. Oberstar indicated that the passage of the General Aviation Revitalization Act, which included products liability reform, was a law that would stop "general aviation from falling out from under us. General aviation," Oberstar said, "is the world's largest airline, full of independent contractors and entrepreneurs. The Boeing 777," Oberstar concluded, "may be where America is headed, but we got there through general aviation. That is our past, and that is our destiny."

In addition to Coyne, Daschle, and Oberstar, the discussion panel consisted of Phil Boyer (AOPA), Richard Collins (aviation journalist), James Crehan (University Aviation Association), Paul Fidducia (SAMA), William Monroe (Aerospatiale), Hal Shevers (Sporty's Pilot Shop), Bruce Holmes (NASA), Charles Huettner (FAA), David Schaffer (Counsel, House Public Works and Transportation Committee), and Kenneth Wiegan (Virginia Department of Aviation).

The panel's discussions developed five major themes for promoting flight training:

- Promote the flying experience to targeted demographic groups, including women and minorities
- Implement strategies enhancing the customer service and marketing skills of the flight training industry
- Encourage government/industry partnership at federal and state levels to support industry promotion programs
- Build on general aviation's improving safety record in winning increased public acceptance of personal flying for transportation and recreation
- Strive for government and industry support for development of more efficient and technologically advanced general aviation aircraft

NATA President Coyne ended the forum by stating, "We believe the Forum and the opportunities highlighted is an excellent start to help the industry increase the number of stu

New Allegheny FSDO

It is not every day that an FAA Flight Standards District Office (FSDO) manager can satisfy U.S. Government national objectives, FAA Headquarters and Regional objectives, and local FSDO objectives and goals while still making everyone happy. But in this era of governmental downsizing, rightsizing, and just about every other "—sizing" one can think of, Gabe Bruno, Manager of the Allegheny FSDO in West Mifflin, PA, a suburb of Pittsburgh, did just that. With the tremendous help of the FSDO employees and

FSDO Manager "Gabe" Bruno

others, he was able, with the support of the FAA's Eastern Region, to move the FSDO out of the old, 1930's era Allegheny County Airport building with its environmental and space limitations to a commercial office building located across the street from the main entrance to the airport and old office building.

Seldom can any organization move to better facilities while saving money, but Allegheny FSDO did. What makes

this move unique is not the modern facilities and expanded work space now available, but the fact that the new office space rents for almost 50 percent less per square foot than the old space. In addition, the men and women at the FSDO were able to furnish the office at minimal cost by finding and getting surplus federal office equipment from throughout the mid-Atlantic area.

Manny Weiss, Special Assistant to the FAA Eastern Regional Administrator, congratulated everyone at the FSDO for their efforts during the office's dedication ceremony last fall by saying in part, "Your perseverance in finding and securing a new, healthy, and safe office is to be commended. In fact, what you have accomplished here at the Allegheny FSDO stands as an excellent example of meeting and exceeding the objectives outlined in Vice-President Gore's National Performance Review—specifically, in making our segment of the Government function better, for less." He noted that the new office is in full compliance with the Americans with Disability Act.

The new facility is an example of how the Flight Standards Service is working to not only save money but to improve its services to the public through better, more convenient facilities. Equally important is the fact that the new facility helps the Flight Standards Service meet its goal of improving its employees' working environment while complying with all applicable regulations. Allegheny FSDO was able to make the move through the hard work and dedication of its employees who continued to meet the demands of the public and airmen during the relocation. Once again, the office lived up to its motto of being "A Full Service FSDO."

Allegheny FSDO serves the 28 western counties of Pennsylvania and four neighboring West Virginia counties. The area includes 30 FAR Part 135 air carriers, 41 repair stations, 13 flight schools, a prominent aviation maintenance school, and about 8,000 pilots.

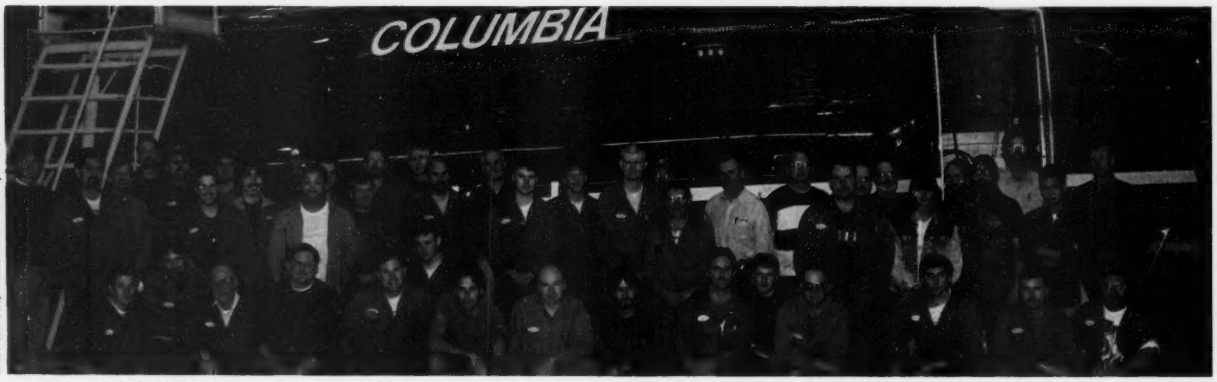
Top Mechanic Awards to Helicopter Operator in NW

For the second year in a row, Columbia Helicopters, based in Portland, OR, received the Maintenance Technician Awards Program Diamond Award. These Awards are the maintenance equivalent of the Aviation Safety Program's "Wings". Columbia Helicopters won for having more than 25% of its maintenance technicians participate in the recurrent training criteria established for the award. Over 90 of the company's technicians—nearly half—received individual awards.

The highest award is the Diamond Award, signifying that the individual attended two hours of training on FAA regulations and policy, completed 10 days or 48 hours of aviation maintenance training, and taught or attended 40 classroom hours (or three semester hours) of a college level course in mathematics, English, science, management, or related subjects. Fifteen Columbia Helicopter mechanics received Diamond awards. Different levels of training are required for the Ruby, Gold, Silver, and Bronze Awards.

"We feel honored to have received the Diamond Award for the second year in a row," said Roy Simmons, President of Columbia Helicopters. "We have always made a strong commitment to our training program." Simmons stated the company has seen a rise in efficiency and better safety records as a result of the training available to employees. "It's a program that may not look productive up front, but the benefits become more apparent in the long run."

Columbia Helicopters received its award at the Columbia Air Fair last fall and is working on a possible "Three-peat" of the Diamond Award.



Dan Sweet, Columbia Helicopters, Inc.

Approximately half of the 91 employees of Columbia Helicopters who received Maintenance Technician awards. Technicians not pictured were serving at one of the company's many remote job sites.

TEST YOUR KNOWLEDGE OF ALCOHOL

Fill in the blanks.

1. Over __% of American adults consume alcohol.

2. Per capita consumption of alcohol in the U.S. is about ___ gallons per year.

3. Alcoholic beverages are marketed in a variety of forms, with _____ and _____ being the most liked.

4. Blood alcohol levels above ___% are considered "under the influence" in most states for motor vehicle operation.

5. Different alcoholic beverages have different concentrations of alcohol; however, their total alcohol content can be the _____. For example, a pint of beer contains as much alcohol as a ____-ounce glass of _____ _____. Therefore, the notion that drinking low-concentration alcoholic beverages is safer than drinking hard liquor is erroneous.

6. The total alcohol content of any alcoholic beverage can be easily calculated using the following formula: "Proof" divided by __ is equal to percent pure alcohol.

For the answers see page 6.

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